2-2024

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Recommended Citation

Schmid, Sarah E., "A Design-Based, Mixed Methodology Study on Neurodiversity-Affirming Practices Among Speech-Language Pathologists in a Midwestern School District" (2024). *Dissertations*. 770.
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A Design-Based, Mixed Methodology Study on Neurodiversity-Affirming Practices Among Speech-Language Pathologists in a Midwestern School District

by

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February 15, 2024

Problem of Practice

Research submitted to the Education Faculty

Lindenwood University, College of Education and Human Services

In partial fulfillment of the requirements for the degree of

Doctor of Education, Leadership EdD

Acknowledgments

First, I would like to thank Dr. Laura DeThorne for putting herself out there and talking about this topic. The topic of neurodiversity was barely on my radar when I attended her talk at ASHA convention in 2019, but she inspired me to want to learn more and do better in my own practices. Finding her course on the ASHA Learning Pass at a time when I needed to pivot in my research plans was truly a blessing.

I would also like to say thank you to my husband, Alex, for taking on so many extra responsibilities to allow me to pursue my Ed.D. and to complete my dissertation. I could not have done this without you.

Thirdly, I would also like to thank my daughters, Chelsea and Elise, for giving me time to work and for encouraging me when I needed encouragement the most, and my son, Lachlan, who was born halfway through the Ed.D. program for being a relatively easy baby who would sometimes let me work on schoolwork.

I would also like to thank my parents for their support and encouragement throughout this process, my sister, Michelle, for shaping my perspective on autism interventions and helping me see the complexity of my topic through multiple lenses, and my friend and co-worker, Joan, for always pushing me to be a better clinician and helping me to step outside of my comfort zone to apply for this program.

Lastly, I would like to thank my Ed.D. cohort for their continued support and motivation to keep moving forward and to Dr. Leavitt, Dr. Nasser, Dr. Deckelbaum, and everyone associated with the program for your proofreading assistance, deadlines, Teams calls to check in, and, most importantly, your support and encouragement.

Executive Summary

As autism diagnosis increased (Maenner et al., 2023; Wright, 2017), autistic individuals increasingly advocated for services aligned with a neurodiversity perspective (Jordan, 2010; Leadbitter et al., 2021). Using a human centric, design-based approach, the researcher identified a lack of alignment between the emerging preferences of the autistic community and the services speech-language pathologists (SLPs) in a large, suburban special education school district felt competent in providing. Some SLPs in the district reported a lack of knowledge and training about the neurodiversity movement and felt further training on the topic was needed. Once the knowledge gap was identified, the researcher worked with a stakeholder team consisting of district administrators and SLPs to generate many possible solutions for the problem, create protypes of possible solutions, and test the selected possible solution to determine if a change in knowledge and/or practices occurred following the intervention. A total of 17 SLPs from across the school district completed a one-hour, asynchronous online training and rated familiarity with neurodiversity concepts, importance of neurodiversity, and sense of confidence with performing various neurodiversity-affirming tasks on an online survey completed before and after the training. Additionally, seven participants completed a follow-up interview at least one month after the training focused on the participant perceptions of the intervention and evidence of any changes in therapy practices. Statistically significant increases in scores were noted on all three portions of the pre-/post- assessment questionnaire. Qualitative interview data indicated SLPs adopted changes in practice and mindset following completion of the training. However, participants had some lingering concerns about the application of ideas presented and expressed the need for further training on the topic. The scholar practitioner reported future interventions backed by theories of organizational change and professional learning.

Keywords: autism, design thinking, improvement science, neurodivergent, neurodiversity, speech-language pathologist

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Chapter One: Introduction

Position of the Problem within Practice

In recent years, awareness increased regarding the importance of diversity, equity, and inclusion in society and the systemic structures allowing inequity to persist specifically in the areas of racial equity, LGBTQ+ acceptance, gender identity, disability rights, and cultural awareness (Sawchuk, 2021; Sprunt 2021; Thomas, 2005). During the same time, the autistic community grew dramatically in size and became a key demographic for speech-language pathologists (SLPs) to support. The Centers for Disease Control [CDC] estimated a doubling in autism prevalence between 2000 and 2017 from 1 in 150 in 2000 to 1 in 68 (Wright, 2017, para. 9), and by 2023, the prevalence had again increased to 1 in 36 (Maenner et al., 2023, p. 4). According to a 2016 American Speech-Language-Hearing Association (ASHA, 2016a) survey of school-based SLPs, 90% of respondents reported working with autistic students (p. 5). Coinciding with the rapid increase in autism diagnosis, autistic individuals, who previously may have gone undiagnosed or been isolated within geographical communities, created online groups dedicated to autism acceptance, self-advocacy, and civil rights (Jordan, 2010; Leadbitter et al., 2021). Within the online spaces, a truly international autistic community developed along with a corresponding activism movement dedicated to improving the quality of life for members of the community commonly referred to as the Neurodiversity Movement (Leadbitter et al., 2021).

The neurodiversity paradigm served as a conceptual framework for understanding neurodiversity's influence on society based on the premise no one correct style of brain existed and the belief neurocognitive variations or differences between individuals had value in society (Walker, 2021). Increased awareness of societal injustice, increased diagnosis of autism, and stronger online organization among autistic individuals led the researcher to a broader awareness of the concept of neurodiversity and the need to reassess how neurodivergent individuals fit into a neurotypical-majority society. The business world increasingly embraced the benefits of neurodiversity (Austin & Pisano, 2017; Employer Assistance and Resource on Disability Inclusion, n.d.; Kuyatt, 2011; Phillips, 2017). Similarly, the field of education underwent transformations in favor of more inclusion and support for all students (Anderson & Hartley, 2018; Berger et al., 2021; Berwick, 2015).

Given the shifts in the broader society, the business community, and the field of education, the researcher believed all professionals who worked with traditionally marginalized individuals should reexamine professional beliefs and practices to identify possible improvements. The re-examination was especially important in the field of speech-language pathology, a field of professionals who supported one of the most essential components of any identity, one’s language and ability to communicate. Although the ASHA adopted the World Health Organization’s International Classification of Functioning, Disability, and Health as a framework for the scope of practice over 20 years ago (American Speech-Language-Hearing Association [ASHA], 2016c; Threats, 2003; World Health Organization, 2001), the field of speech-language pathology, and more broadly special education, remained deeply rooted in the deficit-based model of disability. In the researcher’s experience as a speech and language pathologist the deficit model was used to determine eligibility or ineligibility for special education services, areas of need for new goals, and classroom accommodations and modifications and found in many commonly available speech/language assessment and treatment programs and products on the market.

Members of the autistic community raised concerns related to current language therapy practices. Autistic adults noted how the power differential between therapists and those receiving services created opportunities for inequity, trauma, gaslighting, abuse, and even death (Hines & Walton, 2020; Lynch, 2019; McGill & Robinson, 2020). Additionally, autistic individuals shared how traditional programs for teaching aspects of language associated with social/pragmatic skills led to the development of “masking” behavior such as expending energy to conceal signs of autism from an unwelcoming or unreceptive society to the detriment of the individuals’ mental and physical health (TEDxTalks, 2019a, 2019b). By prioritizing compliance over autonomy, individuals who received services reported not being taught to advocate for themselves, leaving individuals with autism prone to manipulation or being taken advantage of by others around them and feeling unsure of how to establish personal and professional life boundaries (Regan, 2014; Roberts, 2021).

A change in basic assumptions needed to occur to improve the lives of neurodivergent individuals (Leadbitter et al., 2021). SLPs were called by the ASHA’s code of ethics to provide services “respectful of and responsive to the needs of cultural and linguistically diverse populations” (ASHA, 2017b, para. 27). When writing about ASHA’s code of ethics, Donaldson et al. (2017) emphasized the important area of understanding when the author noted the importance of SLPs understanding the “dynamic nature of the autism community and how best to partner with its members” (p. 1). Partnering with stakeholders such as students, teachers, and parents was a key aspect of speech-language therapy and was perceived as essential in understanding the perspective of the stakeholders. Therefore, the researcher believed SLPs needed to listen to autistic voices, understand autistic priorities, and undertake a process of self-reflection and professional development reimagining the support currently provided.

The development of a process to support SLPs moving from a behavioral, deficit-based model of disability toward neurodiversity-affirming practices represented a gap in the current research literature warranting further investigation. The gap in the research represented an urgent problem given SLPs interacted with neurodivergent students daily and harm and trauma caused to neurodivergent students could have long-lasting consequences. To address the need, the researcher attempted to develop a way to support SLPs quickly and efficiently through the transition from a deficit-based model of intervention to neurodiversity-affirming practices in alignment with broader educational equity efforts and input from the autistic community. Through support and empathy for both neurodivergent individuals and the SLPs who provided support, a way forward existed described by Ashoka (2016) as "a world in which people have the societal support, freedom, and confidence to reach their full potential and make a difference in the lives of others” (p. 9).

In Piantanida et al.’s 2018 book, *On Being a Scholar-Practitioner*, the authors described the concept of a “scholar-practitioner,” outlining the six key qualities associated with the role: pedagogical wisdom, theoretical understanding, contextual literacy, ethical stewardship, aesthetic imagination, and metacognitive reflection. The authors’ thesis noted educators should be actively and continually adapting practices to the unique context educators found themselves in, engaging in a form of educational improvisation informed by knowledge, a dedication to preserving and improving the profession, and a strong sense of self-reflection which drove the scholar-practitioner to provide the best possible education to individuals the educator taught and worked with. The authors drew a distinction between the role of behavioral approaches to education and what the authors termed “existential philosophy,” where learning occurred anytime a person made meaning from life experiences. The former was driven by extrinsic motivation such as rewards and punishments, and progress was easily measured through observable actions. The latter was driven by intrinsic motivation and often involved less visible and measurable activities. While individuals in pure research fields may have looked down upon less empirical ways of viewing the world, the authors made the case, often in education, the human-centered and experiential approach to learning should not be seen as less valid than the scientific approach and, in fact, may provide more meaningful and customized insight than the search for broad, universally applicable scientific theories. Since the doctoral student strove to incorporate the six key qualities of being a scholar-practitioner throughout the dissertation process, the term researcher and scholar-practitioner was used interchangeably to refer to the doctoral student throughout the dissertation in practice.

Framework Surrounding the Problem

The study occurred with school based SLPs in a Midwest County in Missouri. According to the 2020 US Census, the total population of the Midwest County was 1,004,235 (United States Census Bureau, 2020b, para. 1). Approximately 22.1% of the population was under 18 years of age (United States Census Bureau, 2020b, para. 1) with 162,107 students enrolled in K-12 schools (United States Census Bureau, 2020a, para. 1).

Approximately 93% of households in the Midwest County had a computer, and 88.8% of households had broadband Internet (United States Census Bureau, 2020b, para. 1). The median household income was $68,661, and 9.1% of the population was in poverty (United States Census Bureau, 2020b, para. 1). Approximately 7.9% of the population under age 65 had a disability (United States Census Bureau, 2020a, para. 1).

At the time of the study, the researched geographical area (RGA) utilized a unique model for supporting students requiring special education services. Unlike many school districts who directly employed special educators and related service providers; specifically occupational therapists, music therapists, and SLPs directly, special education staff in the RGA were generally employed by a County-Wide Special Education District (CWSD). The pseudonym CWSD was used to maintain anonymity of the district involved. The CWSD provided special education services to students through a variety of models. While some staff worked at CWSD run schools designed for supporting students with higher support needs, many CWSD staff worked within what was termed “partner districts,” the 22 local school districts who contracted with CWSD provided staff to the local district as well as special education resources. Over 97% of students who received special education services through the CWSD received services within the home school district (CWSD, 2022c, para. 3).

During the 2020-2021 school year, CWSD provided special education services to 21,855 students in the RGA. Particularly relevant to the study, approximately 15% of the students received services under the disability category of Autism (N=3,261) (CWSD, 2022a). During the same school year, CWSD employed 5,541 staff including 2,761 teacher-level staff and 1,930 paraprofessionals (CWSD, 2022a, Table 3). During the

2019-2020 school year, CWSD’s operating revenue was $478 million, and expenditures were $444 million. Approximately 70% of revenue came from the local level, 21% came from the state, and 9% came from federal funds (CWSD, 2022b).

Given the high percentage of school based SLPs working with autistic individuals, the extensive reach of CWSD within the region, and the high percentage of students in the RGA receiving CWSD provided special education services within partner districts. The researcher determined working directly with SLPs employed by the CWSD was likely to provide a sufficient pool of participants for the research study.

Research Questions and/or Hypotheses

For the design-based mixed methods research study the scholar practitioner in consultation with the Scholar Cohort Lead/Advisor and Leadership, EdD faculty designed the following research questions and hypothesis statements:

Research Question 1: How do the SLPs in a midwestern school district perceive an asynchronous online professional development course on neurodiversity?

Research Question 2: What further support or information, if any, do SLPs perceive necessary related to neurodiversity following the intervention?

Research Question 3: What neurodiversity-affirming practices, if any, do SLPs adopt in therapy sessions after completion of the intervention?

Null Hypothesis 1: There is no increase between SLPs’ pre-/post-test rating scores after implementation of the intervention.

Definition of Terms

The scholar practitioner identified the following terms as fundamental to understanding the problem of practice.

Ableism: “a set of beliefs and practices against people with disabilities.... Rooted in the perspective that people with disabilities are inferior to people without disabilities and require ‘fixing’ to fit in or adapt to the norm” (Sanzo, 2021, para. 4).

American Speech-Language-Hearing Association: “The American Speech-Language-Hearing Association (ASHA) is the national professional, scientific, and credentialing association for 228,000 members and affiliates who are audiologists; speech-language pathologists; speech, language, and hearing scientists; audiology and speech-language pathology assistants; and students” (ASHA, 2023a, para. 15).

ASHA Learning Pass: A subscription based online content platform for SLPs to access both live and on-demand professional development courses providing Continuing Education Units (CEUs) required to renew ASHA certification (ASHA, 2023d).

Autism: A developmental disability with conditions ranging from difficulties with social interactions, communication and regulating emotions and behaviors. The severity of symptoms varies from mild impairment to significant cognitive, behavioral, and physical impairment (Missouri Department of Elementary and Secondary Education, n.d.). According to Walker (2021), “Those who have embraced the neurodiversity paradigm, and who truly understand it, do not use pathologizing terms like ‘disorder’ to describe neurocognitive variants like autism” (p. 33).

Autistic: The preferred term to describe an individual meeting the diagnostic criteria for a diagnosis of autism spectrum disorder (Taboas et al., 2023).

Effective Practice Specialist (EPS): Administrative positions within the CWSD responsible for supporting teachers and therapists in designated areas including autism, speech-language pathology, and social/emotional/behavioral needs.

Neurodivergent: “Having a mind that functions in ways which diverge significantly from the dominant societal standards of ‘normal’” (Walker, 2021, pp. 34-35).

Neurodiversity: “[T]he diversity of human minds, the infinite variation in neurocognitive functioning within our species” (Walker, 2021, p. 31).

Neurodiversity-affirming practices: Therapeutic approaches and activities in alignment with the neurodiversity movement and the concept “that being autistic is not in and of itself problematic or a reason for seeking therapeutic services, nor should targeting autistic behaviors be therapeutic objectives” (Dallman et al., 2022, p. 5).

Neurotypical: “[H]aving a style of neurocognitive functioning that falls within the dominant societal standards of ‘normal’” (Walker, 2021, p. 36).

Speech-language pathologist (SLP): A health professional who “work[s] to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults” (ASHA, 2023c, para. 1).

Limitations/Researcher Bias

One limitation of the study was a lack of generalizability. Barnes et al. (2005) defined generalizability as “the extension of research findings and conclusions from a study conducted on a sample population to the population at large” (para. 1). Due to the nature of the design thinking process, the findings of the study were strongly influenced by the context in which the study was conducted. The study took place in one school district in the Midwest and focused on one problem of practice unique to the researched setting. The population of SLPs, parents, and professionals participating in the empathy phase was 10, and the researcher selected to use a convenience sample defined by job role, not randomly selected. As a result of the limited sample size within each group, thematic data saturation was not reached during the empathy phase.

Based on the study participant's previous experience, level of knowledge, and receptiveness to learning more about the topic of neurodiversity, findings from the test phrase of the study may not generalize to professional development of a group with mixed levels of interest in the topic or participants who were required to attend the training.

However, the problem of practice had the potential for transferability to similar settings and/or contexts. According to Barnes et al. (2005), "transferability does not involve broad claims, but invites readers of research to make connections between elements of a study and their own experience" (para. 2). Piantanida et al. (2018) examined the contrast between generalizable, scientific research and more qualitative and context-specific research focused on student/stakeholder perspectives ultimately concluding scholar-practitioners used less formal problems of practice to generate unique knowledge, not less valuable than scientific knowledge stating, "We (and others) are arguing that scientific knowledge is necessary but not sufficient to understand human affairs" (p. 145).

In addition to issues with generalizability, two potential researcher biases were identified. Firstly, the researcher did not identify as autistic, which had the potential to lead to misunderstandings or incorrect assumptions about the wants and needs of autistic individuals due to the double empathy problem (Milton, 2012). One essential tenant of the neurodiversity movement was the concept, "Nothing about us, without us" (Autistic

Self Advocacy Network [ASAN], 2022, para. 1). To correct for the potential bias, the researcher was surrounded with autistic voices and prioritized neurodivergent voices in any situation where disagreements were noted between the beliefs of neurotypical society and the autistic community. As with other social movements, requiring all the work involved in changing a broken system to fall to members of a historically marginalized group was also important to avoid. Allyship actively working as a "co-conspirator" with historically marginalized groups and witnessing how personal or professional privilege could play a role in bringing about societal change. Dorsey (2022) described the role of co-conspirators in racial justice by stating, "they acknowledge and center the work already being done by leaders and communities closest to the issues and offer meaningful support to advance their cause" (para. 5). Through the problem of practice, the researcher strove to bring the messages from neurodivergent leaders and communities closest to the issues to a broader audience.

The researcher's professional identity as a speech-language pathologist also had the potential to lead to researcher bias. The fields of speech-language pathology and Applied Behavior Analysis (ABA) had ongoing disagreements over the best approach to take in working with autistic individuals (Volkers, 2020). Autistic adults within the neurodiversity movement expressed preference for services from an SLP instead of through ABA, although there was often some overlap between the services. The neurodiversity movement often referred to ABA as abuse and a violation of human rights (Sandoval-Norton et al, 2021; Therapist Neurodiversity Collective, 2022a). Strong backlash came from the neurodiversity community against SLPs or other practitioners willing to entertain reforming or collaborating with those in the field of ABA. To correct for the potential bias against ABA, the researcher chose to focus on neurodiversity affirming practices within the field of speech-language pathology instead of focusing on practices to avoid. While the research was intended to provide support for practicing SLPs regarding the adoption of neurodiversity-affirming practices, the researcher believed the prototype design and study results could be perceived as beneficial to other fields working with neurodivergent individuals.

Summary

In Chapter One, the researcher sought to provide context for the problem of practice by providing an overview of the topic, outlining key terms, and describing the specific environment in which the problem occurred. The researcher then reported limitations with the research study including challenges with generalizability and potential biases of the researcher due to the researcher's identity as a non-autistic SLP. Strategies for correcting potential biases included surrounding the researcher with autistic voices and prioritizing neurodivergent voices in any situations where disagreements were noted between the beliefs of neurotypical society and the autistic community and focusing on neurodiversity affirming practices within the field of speech-language pathology instead of focusing on practices to avoid. The researcher completed a review of the current literature within Chapter Two.

Chapter Two: Literature Review

Overview of Neurodiversity

Singer (1999), an Australian sociologist, first described the concept of neurodiversity in a sociology thesis titled *Odd People In: The birth of community amongst people on the "Autistic Spectrum": A personal exploration of a New Social Movement based on Neurological Diversity* (Harris, 2023; Singer, n.d.) and a follow-up chapter within a book titled *Disability Discourse* (Craft, n.d.; Resnick, 2021). At the time, Singer sought a term to describe how people "with different kinds of minds" (as cited in Craft, n.d., para. 9) faced similar oppression to the experiences of women and members of the LGBT community. Singer determined the neurologically diverse group needed a social movement to advocate the group's specific needs (Harris, 2023). While "neurological diversity" seemed too challenging of a term to catch on, the author coined the term "neurodiversity," a term used ever since (Craft, n.d.). According to Craft (n.d.), Singer described the choice of the term as a deliberate step away from the field of psychotherapy, which developed the idea of the autism spectrum and the term "on the spectrum" to describe those who met autism's diagnostic criteria.

According to Harris (2023), around the same time, Singer corresponded with journalist Blume (1998) who published an article for *The Atlantic* raising awareness to the idea of neurodiversity within the broader society. In the article, Blume stated "Neurodiversity may be every bit as crucial for humanity as biodiversity is for life in general. Who can say what form of wiring will prove best at any given moment?" (Blume, 1998, para. 4).

In the years since, the umbrella of what constituted who counted as neurodivergent, has been up for debate. Some used the terms as a synonym for autistic individuals. Others included attention deficit hyperactivity disorder (ADHD), anxiety, language impairments, learning disabilities, and other mental health conditions (Disabled World, 2022; Wiginton, 2021), while still others included disabilities with physical components such as Down syndrome and epilepsy (Resnick, 2021).

Preferences of the Community

For the purposes of the literature review, the researcher decided to focus specifically on autistic representations of neurodiversity. Among autistic neurodiversity self-advocates, preferences included the use of identity first language and avoidance of the label Asperger Syndrome (AS), preference for the social model of disability, resistance to behavioral approaches, resistance to a “cure,” claiming autistic identity and culture, viewing autism as a difference instead of a disorder, and avoidance of functioning labels.

Preference in Labels

To understand the preference for identity-first language, understanding the evolution of the autism label over time was helpful. As understandings of autism changed throughout history, changes in terminology preferences also occurred (Kenny et al., 2015; Kircher-Morris, 2022). Initially, the term autism was used by Eugen Bleuler, a German psychiatrist, for individuals diagnosed with severe schizophrenia who lived in a world of fantasies and hallucinations (Evans, 2013). Kanner, an early scholar, and psychiatrist working with autistic children, coined the term ‘infantile autism’ in 1943 to describe the children Kanner worked with at Johns Hopkins Hospital (Evans, 2013; Kanner, 1943).

Kanner (1943) further described the children by stating “We must assume that these children have come into the world with an innate inability to form the usual, biologically provided affective contact with people, just as other children come into the world with innate physical and intellectual handicaps” (p. 34). At the time, Kanner questioned if the children's “highly intelligent parents” who were “strongly preoccupied with abstractions of a scientific, literary, or artistic nature and limited in genuine interest in people” and with “obsessiveness in the family background” were to blame for the child’s condition (p. 34). Around the same time as Kanner offered a description of autism, Austrian pediatrician Hans Asperger began referring to children with autistic characteristics who had “normal or precocious language acquisition” (Barahona- Corrêa & Filipe, 2015, para. 2) as “autistic psychopaths,” a label later becoming Asperger Syndrome (AS) when Asperger’s postdoctoral thesis gained international attention in the 1980s (Czech, 2018).

During the early days, autism was considered a psychiatric condition and therefore the experts included psychiatrists and psychologists (Kircher-Morris, 2022). Parents were considered part of the cause of autism, therefore not considered as meaningful advocates for children. The perspective toward autism influenced the types of approaches used to treat the disorder. Institutionalization and heavy medication were common (Wright, 2017), and dehumanization was an unfortunate outcome. During World War II, Hans Asperger was found to have ties to the Nazi eugenics movement and while Asperger received praise for recognizing the gifts and intelligence of those with AS, more recent evidence uncovered Asperger referred children with lower intelligence to the Vienna clinic, *Am Spiegelgrund*, a facility responsible for the deaths of 789 children through the use of child euthanasia and horrific experiments (Alliance for

Human Research Protection, 2014; Barahona-Correa & Filipe, 2015; Czech, 2018; Singh, 2018).

When autism was initially added to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (American Psychiatric Association, 1994), the diagnostic profile consisted of many different disorders including other diagnoses such as Asperger Syndrome, Autistic Disorder, and Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS). The preference toward identity-first language ("autistic person") vs. person-first language ("person with autism") emerged alongside an increase in parent advocacy for disabled children, the deinstitutionalization of previously institutionalized individuals, and the rise of the disability rights movement (Kircher-Morris, 2022). While individuals had previously been labeled as "morons," "autistic psychopaths" or "demented," terminology such as "person with an intellectual disability" or "person with autism" were much more respectful to individuals and family members (Kircher-Morris, 2022). Similarly, the federal law the "Education for All Handicapped Children Act" (EHA, 1975) was renamed the "Individuals with Disabilities Education Act" (IDEA, 1990), a shift in wording from identity-first language to person-first language. While improvements in terminology as well the movement away from the institutionalization of individuals with disabilities did not bring about all the changes in services students with disabilities required, the changes reduced stigma, allowed children with autism to access school, and established some level of support to help develop skills (Kircher-Morris, 2022).

More recently, autistic individuals who grew up receiving an education and support began to advocate for themselves by providing insights from unique lived experiences (Kircher-Morris, 2022). The rise of the internet and assistive technology allowed increased communication among individuals separated by distance or communication challenges, and the neurodiversity movement and autistic culture and identity became stronger than ever through the interactions (Gillespie-Lynch et al., 2011). While many professionals were still being trained to use person-first language during schooling, autistic individuals, like the Deaf and DeafBlind community who viewed deafness or blindness as a part of an individual’s identity and culture, advocated for identity first-language (Callahan, 2018). In recent years, the use of identity-first terminology to describe autistic individuals was identified as the majority preference among most autistic self-advocates. Kenny et al. (2015) reported in a survey of 3,470 people of various neurotypes, 61% of autistic respondents, 52% of family members and friends of autistic individuals, and 51% of parents preferred the identity-first label “autistic person” compared to the person-first label “person with autism” (p. 446). In the same survey, only 38% of professionals preferred identity-first language (Kenny et al., 2015, p. 446), a sign professionals may have lagged in adopting the most recent approaches to autistic individuals.

The most recent edition of the *DSM* (American Psychiatric Assocation, 2013) consolidated the various components of the spectrum under one umbrella label, autism spectrum disorder. While initially embraced as a prestige diagnosis by self-identified “Aspies” who met the eligibility criteria for AS, the AS diagnosis fell out of favor and use, and the founder, Asperger himself, was found to have deep ties to the Nazi eugenics movement and role the deaths of severely disabled children who were deemed to be a burden on society (Barahona- Corrêa & Filipe, 2016; Czech, 2018; Singh, 2018). While some autistic adults in online communities continued to identify as “Aspie,” the researcher found much of the neurodivergent community opposed the use of the term due to the ties to Nazism and the idea the label sent, a message of a hierarchy or sense of superiority within the autistic community.

Preference for the Social Model of Disability

Another aspect of the neurodiversity community was the preference for the social model of disability over or in addition to the medical model of disability. The social model was initially developed by the Union of Physically Impaired Against Segregation (UPIAS) to shift the focus of disability from biological deficits to barriers created by a society systemically oppressing those with physical or mental impairments (Oliver, 2013; Shakespeare, 2010). According to UPIAS, society was responsible for disabling individuals by isolating and keeping individuals from participating fully in society, and the disability was in addition to and different from an individual's impairments (Shakespeare, 2010).

The social model contrasted with what Oliver (1983 as cited in Oliver, 2013) called the “individual model,” more often referred to as the medical model, since Oliver (1990) initially argued medicalization was only one component of the individual model. The individual model ascribed the difficulties experienced by disabled individuals as originating from deficits or impairments within the individual rather than from the way society accommodated and supported individuals with deficits or impairments. When individuals with authority had a bias toward medicalization, such biases and perceptions influenced the types of treatments pursued or provided. Medical treatment for illness often centered on the desire for return to a “normal,” and when normality was not possible (as in the case of neurodivergence), the goal became to “restore the disabled person to a state that is as near normality as possible. So surgical intervention and physical rehabilitation, whatever its costs in terms of the pain and suffering of disabled individuals, is always justified and justifiable” (Oliver, 1990, p. 5). Instead of serving as the sole experts on disability, Oliver (1990) argued doctors must work together with disabled people to problem solve and share power over decision making.

While acknowledging some critics of the social model implied the model allowed no place for individual or medical model of disability, Oliver (2013) refuted the claim and stated the social model was only one tool in understanding how the role disability played in the lives of individuals, not the only lens through which individuals should view a disability. Oliver (2013) cautioned against depending too heavily on the social model after noticing how the model was used following the 2008 financial collapse to deny supports to disabled individuals whose needs were not deemed “critical.”

The preference toward the social model of disability also appeared in research by Angulo- Jiménez and DeThorne (2019) who identified 77% of autistic vloggers drew from both neurodiversity paradigm and medical model terminology as opposed to only 23% of autistic bloggers who utilized only medical model terminology (p. 578). Levitt (2017) proposed incorporating the intersectionality of geography related to the social model and encouraged considering the harmful outcomes caused by a lack of societal understanding about disability as a further barrier to full participation experienced by disabled individuals. The scholar-practitioner revisited the topic of models of disability later in the review of the literature.

Botha and Frost (2020) also opposed the medical model of disability stating while one can explain treating and curing life-threatening illness, applying the medical model to autism in the absence of a cure was inappropriate. Botha and Frost (2020) also discussed the harm, invalidation, and dehumanization resulting from attempts to inappropriately apply the model. For example, researchers questioned the existence of an autistic community due to misconceptions from the medical community regarding theory of mind leading some to question whether autistic individuals formed connections with others in the community. Botha and Frost (2020) instead supported a "minority model" of disability, which closely paralleled the Oliver (1990) social model. The researchers defined the minority stress model as "the notion that one can have a condition the medical model considers a disability, but in actuality, it is a society with restrictive notions of normal that creates disability" (Botha & Frost, 2020, p. 21). Botha and Frost (2020) contended autistic individuals exposed to the stress of living as a minority (discrimination, internal stigma, and masking aspects of one's identity) contributed to increased mental health problems within the autistic community as opposed to the diagnosis itself causing such problems.

Opposition to Behavioral Approaches

Probably the most essential and consistent tenant of the neurodiversity movement was opposition to behavioral approaches to treating autism, specifically Applied Behavioral Analysis (ABA). The field of ABA related to autism treatment emerged in the late 1960s and early 1970s at The University of California Los Angeles (UCLA) led by Ivar Lovaas and Robert Koegel as a highly intensive and regimented way of, in Lovaas's words, "building a person" from children who were "not people in the psychological sense” (Wilson, 2020, para. 7). In recent years, the field of ABA emerged as the primary recommended treatment for autistic children, with children receiving services often up to 40 hours per week. According to the advocacy organization Autism Speaks, considered controversial among members of the autistic community, more than 20 studies documented improved outcomes for children receiving between 25 and 40 hours per week of ABA therapy for between 1-3 years (Autism Speaks, 2022, para. 35). Gorycki et al. (2020) also referenced several studies which, the researchers claimed, supported the efficacy of ABA.

Autistic self-advocates and researchers argued the use of ABA or other behavioral approaches caused damage to the minds of neurodivergent individuals in several harmful ways, and neurotypical and neurodivergent individuals had a responsibility to treat ABA as a civil rights abuse (Sandoval-Norton et al., 2021; Therapist Neurodiversity Collective, 2022a). Researchers reported many harms of ABA including ABA encouraged masking of neurodivergent traits, forced eye contact, reinforced ableist beliefs, focused on compliance over autonomy, ignored the role of executive functioning skills, and suppressed self-regulating self-stimulatory (e.g. “stimming”) behaviors (Charlton et al., 2021; Lynch, 2019; Ne’eman, 2021). In addition, researchers argued the focus on only external, observable behaviors created situations where neurodivergent individuals were forced to hide children’s true selves and remain silent about needs causing harm since research indicated how the opposite, disclosing a disability and advocating for needs, resulted in better long-term mental health (Bogart et al., 2018; Bradley et al. 2021; Cage & Troxell-Whitman, 2020; Hull et al., 2021; Leadbitter et al., 2021; Ne’eman, 2021; Pearson & Rose, 2021; Roberts, 2021).

In addition to the psychological harm caused by ABA, Sandoval-Norton et al. (2021) questioned many of the arguments made by ABA proponents in support of ABA practices. The authors used founder Ivar Lovaas's application of ABA to treat boys who displayed "feminine" characteristics through the Feminine Boy Project as evidence Lovaas was willing to attempt to control behavior without a firm understanding of the affective and cognitive components underlying the behavior. The authors stated "Clearly, the ends do not justify the means; and so ethically, there must be a prerequisite understanding of the internal processes of a human being before applying any behavior techniques to modify behavior" (p. 127). Sandoval-Norton et al. (2021) further alleged the focus of ABA was not on the recipient of the therapy, but instead on the comfort of the neurotypical individuals around the recipient, often at the expense of the recipient's personal needs, including the need to self-regulate. The researchers questioned the expertise of ABA practitioners who, while presented as the experts on treating autism, were not required to take any formal coursework on autism, autistic neurology, or mental health. Additionally, Sandoval-Norton et al. (2021) questioned the research on longitudinal outcomes of ABA and noted the difference between longitudinal follow up after an experience in ABA therapy with the outcomes of long-term, daily ABA therapy for 5-20 years calling into question research cited by ABA proponents, Gorycki et al. (2021). The researcher referred to further criticism of the inherent problems with behavioral approaches in greater depth later in the literature review.

Resistance to "curing" autism

Autistic self-advocates repeatedly expressed concerns with the idea of "curing" autism. Given the historical ties between Hans Asperger, the Nazi movement, and the eugenics movement, many neurodivergent individuals were cautious about the long-term repercussions of identifying a cure or a genetic cause of autism on the autistic community. Sarrett (2016) discussed how concerns related to identifying a specific “curable” biomarker for autism could result in an increased desire for a cure and stated “[neurological] differences, adherents argue, should be neither cured nor normalized but accommodated, accepted, and made more visible to non-autistic individuals and communities” (p. 25). A study on genetic factors of autistic individuals and families by prolific autism researcher, Simon Baron-Cohen, was put on hold in 2021 after a large boycott occurred in London (Sanderson, 2021). Also, in Sanderson (2021), autistic self-advocate Kieran Rose, discussed the problems with the study by stating the study could lead to prenatal screening for autism and, as a result, fewer autistic individuals in society. Sue Fletcher-Watson, a psychologist in Scotland, pointed out in the same article, “A genetic study would be terrifying for lots of autistic people; there’s a long-established and well-known history around eugenics and disability” (as cited in Sanderson, 2021, para. 9). The community complained no consultation occurred between the research team and participants and families before designing the study (Sanderson, 2021) and Sinclair (1993) a leading autistic self-advocate, argued in an influential article on neurodiversity, “Don’t Mourn for Us,” how finding a cure for autism would be akin to causing the death of the individual who was cured stating,

> Autism isn't something a person has, or a "shell" that a person is trapped inside. There's no normal child hidden behind the autism. Autism is a way of being. It is pervasive; it colors every experience, every sensation, perception, thought, emotion, and encounter, every aspect of existence. It is not possible to separate

> the autism from the person--and if it were possible, the person you'd have left would not be the same person you started with. (para. 5)

Fein et al. (2013) attempted to document “recovery” from autism and described the group of individuals who no longer met the criteria for autism as having achieved the “optimal outcome.” Fein et al. (2013) succeeded in documenting a subset of individuals previously diagnosed as autistic earlier in life but were later found to perform comparably to non-autistic individuals on measures of socialization, communication, face recognition, and certain language measures. However, the Autistic Self-Advocacy Network (ASAN) responded to the research by noting the Fein et al. (2013) study deemed successful “recovery” from autism as being able to present as neurotypical without consideration for the mental health of the participants who often simply replaced the autism diagnosis with diagnoses of ADHD and depression (ASAN, 2013). The ASAN response to Fein et al.’s research further stated, “The goal of autism research and service provision should be to create happy Autistic people, not to encourage passing for non-autistic without regard to the impact on our quality of life” (ASAN, 2013, para. 4). A similar point of view was also expressed by Ne’eman (2021), who argued how, in the absence of a particular biomarker for autism and because of the overreliance on behavioral observations to diagnose autism, the professionals and parents who supported individuals continued to operate under the assumption where being able to no longer display behavioral traits of autism would be consistent with a cure.

Even Autism Speaks, a well-known autism advocacy group strongly opposed by those in the neurodiversity community due to the organization’s history of ableist messaging on autism and lack of involvement from the autistic community (Luterman, 2020), updated the organization’s mission statement in 2016 to remove a reference to curing autism. Thomas Frazier, Chief Science Officer at Autism Speaks stated “We were looking for the autism gene, and we thought that would ultimately lead to some kind of cure for autism. Then we recognized that we were way off base” (as cited in Stenson, 2019, para. 13). Baron-Cohen (2018), whose genetic study was met with such opposition from the autistic community stated, “We at the Autism Research Centre have no desire to cure, prevent or eradicate autism” (para. 16), instead, arguing in favor of the benefits early intervention and more accurate identification could bring to the world. With so many disparate perspectives converging on opposition to a cure, the researcher questioned whether opposition to a cure, while originally a tenant of the neurodiversity movement, had become the mainstream approach to autism research.

The Importance of Claiming Autistic Identity

In contrast to the concept of eradicating or “curing” autism, the neurodiversity movement stressed the importance of preserving and claiming autistic identity (Sarrett, 2016). Sarrett (2016) described autistic identity as “some iteration of cultural and social models of disability, which consider disabilities, including autism, as cultural communities of individuals whose bodies and minds mis-fit with physical and social surroundings constructed for the ‘normate’” (p. 25). On online forums and Facebook groups, individuals often included a neurotype as a part of the posts. Many users added AA (actually autistic), Âû (Autistic Union), or ND (neurodivergent) at the start of posts (Autistic Union, 2019; Greely, 2021). On some groups, AAC users or neurodivergent individuals were given the first 24 hours after a post was made to respond before the discussion would be opened to neurotypical individuals or non-AAC users (Ask me, I’m an AAC user, n.d.; Ask me, I’m Autistic, n.d.). The practices were specifically designed to prioritize the voices of previously marginalized, neurodivergent groups (Ask me, I’m Autistic, n.d.).

In addition to the practices described above, individuals in online communities were required by group rules to accept self-diagnosis of autism as a valid form of diagnosis. While a formal autism diagnosis was often made by a medical professional based on symptoms or characteristics aligned with the criteria set forth in the DSM-V (American Psychiatric Association, 2013), the idea of validating self-diagnosis emerged as a response to the medicalization of autism, the deferral to often neurotypical medical authorities to determine if an individual possessed an autistic brain, and over or underdiagnosis within certain populations of the community, especially people of color, those in lower socioeconomic classes, and women (Lewis, 2017; Sarrett, 2016). Maintaining employment, and as a result having health insurance, was also cited as a barrier to formal diagnosis by a medical professional (Sarrett, 2016). A study by Lewis (2017) documented many of the same barriers as Sarrett (2016), but also included a fear expressed by many participants related to professionals not believing reported symptoms and minimizing the participant’s reasons for seeking a diagnosis.

Sarrett’s (2016) research noted the idea of self-diagnosis as uncommon within the domain of psychiatric conditions, and for conditions frequently informally self-diagnosed, such as anxiety or depression, the self-diagnosis rarely led to involvement in the more active self-advocacy and human rights movements associated with diagnoses such as the Mad Pride movement for psychiatric conditions or the neurodiversity movement. Lewis (2017) added the importance of professionals closely considering cases of self-diagnosis instead of attempting to refute the diagnosis, acknowledged how in adult populations, the presentation of autistic characteristics may not be as visible due to coping mechanisms the individual developed over the course of the individual's life.

Sarrett (2016) and Lewis's (2017) research into self-diagnosis was especially important considering recent research by Oredipe et al. (2022) who identified how quality of life and sense of well-being in adulthood were related to individuals finding out about an autism diagnosis earlier in life compared to later. The researchers suggested the findings were attributable to access to support services and support in understanding of who participants were as individuals. Such support was often unavailable or not provided to adults following diagnosis. Riccio et al. (2021) similarly found autistic adolescents had a more favorable view of themselves and autism if parents had voluntarily disclosed the information regarding an autism diagnosis to the child as opposed to adolescents with parents unwilling to disclose the diagnosis until later.

Once individuals had a diagnosis, either formal or self-diagnosed, embracing the diagnosis served as a protective factor. Bogart et al. (2018) drew comparisons between groups of individuals with disabilities and other groups who experienced stigma, including ethnic minorities and international students. Bogart et al. (2018) found individuals who experienced stigma may reject mainstream, non-disabled, neurotypical, views of disability and be pushed toward others within a disability community focused on disability pride. By building strong connections and a sense of pride within the stigmatized group, individuals within the group experienced higher self-esteem. The researchers cited a 2017 study by Silverman et al. which identified having at least one friend with a disability contributed to higher life satisfaction for disabled individuals. By having established procedures to indicate neurotype and removing the barrier of requiring a formal, medical diagnosis before an individual was able to identify as a member of the neurodivergent community, neurodivergent groups opened the door to the autistic identity and allowed many individuals to find the connection and support online the individuals may not have realized was needed to preserve self-esteem, reduce stigma, and improve quality of life.

Difference vs. Disorder vs. Disability

Whether autism represented a difference, disorder, and/or disability was a common topic of debate within neurodiversity literature. Baron-Cohen (2019) summarized the differences in terminology by stating “disorder” referred to when an individual showed symptoms of an unknown cause leading to dysfunction. A “disease” was used when the cause of a disorder was known, while “disability” referred to the performance of an individual below the average range on a standardized assessment and difficulty in each environment. Additionally, “difference’ referred to a variation in a trait, like eye or hair color.

Adherents to the social model of disability as discussed previously defined the term “disability” less as a comparison on a standardized measure falling below the average range, but as the status of an individual who literally had the ability removed by societal barriers, the individual had been dis-abled by society (Oliver, 2013; Shakespeare, 2010). Under the social model, disability was imposed on top of “differences” or “impairments” society was unable or unwilling to accommodate (Shakespeare, 2010).

Neurodiversity advocates commonly viewed autistic characteristics as “differences.” Kenny et al. (2015) quoted one study participant as saying, “Autism is just another way of thinking, not some sort of disease one can catch” (p. 448) and another study participant stated, “It [autism] is not a disorder, I am not a disordered version of a non-autistic person” (p. 448). Three quotes included in the Kenny at al. (2015) research questioned the use of the term disability to describe autism. One individual expressed dissatisfaction with both the terms disorder and disability as the terms implied the participant was handicapped in some way. The participant reported, “While there are things I find difficult, like making friends and coping with change, I can learn to overcome these issues with support from family, friends, and professionals” (p. 448). Another individual stated, “Autism is not a disability, disorder or syndrome, more of a different way of perceiving the world” (p. 448). Two other participants in the Kenny et al. (2015) study expressed views in alignment with Oliver’s (2013) social model of disability. One stated, “Autism is not the disability. The disability occurs where there aren’t sufficient supports” and another stated “it [autism] only becomes a disabling condition within the context of an ableist society which does not understand, cares little for, or offers limited support to people with autism” (p. 445).

Others, often parents or professionals working with autistic individuals with high support needs, intellectual disabilities, and/or lower language skills, argued framing autism through the lens of a neurological “difference” instead of a medical disorder and ignored the painful reality many autistic individuals and families faced daily (Baron-Cohen, 2019; Opar, 2019a). Opponents of the “difference” mindset expressed concern regarding research and funding if the diagnosis were to be de-medicalized (Opar, 2019a). In addition, the formal recognition of autism as a disability allowed diagnosed individuals access to increased services and support not otherwise available.

Parents opposed to the difference mindset formed an advocacy group in January of 2019 dedicated to advocating for the needs of autistic individuals with high support needs. The National Council on Severe Autism (NCSA), claimed to advocate for individuals who could not advocate for themselves (Opar, 2019b). A parent writer for the NCSA expressed opposition to what the organization referred to as the “toxic autism ideologies” of autistic self-advocates argued for changes in terminology and mindset stating, “if we [parents of non-speaking autistic children] don’t speak up, the meaning of autism as a diagnosis of a disability will change” (Seasons of Autism, 2022, para. 7). The NCSA faced hostility from neurodiversity advocates who opposed the group’s neurotypical leadership pushing for neurotypical guardianship of autistic individuals, gated, segregated communities to contain autistic adults, and the use of restraints (Opar, 2019b).

In response to the critiques from parents of individuals with “severe autism,” neurodiversity advocates responded individuals who were non-speaking or who had significant behaviors should not be denied autonomy and voice as a human rights issue. McCracken (2021) contended autistic children’s language, literacy, and communication skills may present as lower than the true ability due to a lack of early access to augmentative alternative communication (AAC) and assistive technology and compared the lack of early access to AAC to the “audiocentric bias that Deaf activists have combated for decades” (p. 214). Members of the group CommunicationFIRST also advocated for the needs of individuals with limited verbal output with a mission “to protect and advance the rights, autonomy, opportunity, and dignity of people with speech-related disabilities through public engagement, policy and practice change, and systemic advocacy" (CommunicationFIRST, 2021a, para. 1). The organization's leadership consisted of both individuals who communicated using AAC as well as individuals, often with other disabilities, who communicated best using speech (CommunicationFIRST, 2021b). Leadbitter et al. (2021), responded to the debate about the neurodiversity movement ignoring the needs of persons unable to speak for themselves and argued non-speaking autistic individuals within the neurodiversity movement who were able to communicate could advocate better for autistic individuals who were unable to communicate better than neurotypical parents would be able to due to the lived experience with autistic neurology.

Overall, the autistic community and the broader autism community of parents and professionals held strong opinions about the terminology of difference, disorder, and disability. The opinions appeared to be tied to overall mindsets related to autism and neurodiversity. Baron-Cohen (2019) advocated for seeing the value in both mindsets depending on the specific need being addressed. While sensory processing differences, highly specific interests of autistic individuals, and more direct styles of interaction may be best interpreted as a "difference." Associated language deficits, intellectual disabilities, and gastrointestinal issues associated with autism may be better explained using a medical model. However, the researcher believed understanding both sides of the contentious debate appeared useful in informing professionals working with parents what other views parents may hold about the child and autism in general.

Avoidance of Functioning Labels

As referenced in the quote by the mother on the NCSA blog, the neurodiversity movement was opposed to the use of functioning and severity labels such as severe high-functioning or low-functioning to describe autistic individuals. Angulo- Jiménez and DeThorne (2019) observed how the use of levels of functioning in YouTube videos created by autistic content creators was associated with videos containing person-first language and the medical model of disability. Kenny et al. (2015)'s survey of terminology preferences revealed few autistic individuals, parents, professionals, family, or friends endorsed the use of the term "low-functioning autism." While a greater number of respondents in Kenny et al.'s (2015) study endorsed the use of the term high functioning autism, the group was still a minority of participants. A key justification for the avoidance of functioning labels was illustrated by a quote from one of the participants who expressed frustration with functioning labels being used to "disregard the opinions of autistic people. Non-autistics decide for themselves that we are either 'too low functioning' to be capable of having an opinion, or 'too high functioning' for our experiences to be relevant" (Kenny et al., 2015, p. 450).

Donaldson et al. (2017) cited several sources opposed to use of "high functioning" or "low functioning" autism as such terms often resulted in unfair assessments of competence and did not consider variations in functioning from one day to the next. Similarly, Burns (2019) noted how functioning labels were harmful to autistic individuals by misrepresenting the level of support an individual required. Burns, an autistic YouTuber, who reported being considered high functioning with strong verbal language skills also reported difficulties in sensory processing which often interfered with the ability to function in certain situations. Burns noted how functioning labels often did "not recognize that our state of being is subject to fluctuation; there will be days or weeks where we are on top of the world – other times, we hit rock bottom" (Burns, 2019, para. 4). A participant in Kenny et al. (2015)'s study also stated opposition to the use of the term "low functioning autism" stating, "In my experience, this focus encourages people to devalue more profoundly autistic people and overlook their gifts/abilities" (p. 449). Perhaps the best summary of the issue with functioning labels was stated in Kenny et al. (2015):

> It is important to avoid making assumptions of a person's potential for independence, accomplishment or happiness based on their apparent level of intellectual ability or "functioning level." Such apparent "functioning levels" are inherently subjective to the observer and have more to do with how well we "pass" than with actual ability. They are also highly contextual and vary depending on the person's current cognitive, sensory or emotional processing load. In general functioning labels should be abandoned in favour of concrete descriptions of an individual's specific access needs for particular accommodations. (p. 449)

Prioritization of Lived Experiences and Autistics as the Experts on Autism

A final tenant of the neurodiversity movement was best summarized by the motto of the Autistic Self Advocacy Network (ASAN, 2022), "Nothing about us, without us" (para. 1). Within the movement, understanding the lived experiences and perspectives of autistic individuals was viewed as essential. Neurotypical individuals involved in the movement, even prolific researchers, and medical professionals, were tasked with listening to and elevating autistic voices.

In the area of research, neurodiversity advocates stated how, for too long, the perspectives of autistic individuals had been minimized, resulting in misunderstandings and myths about autism (Heselton, 2021). Heselton (2021) also encouraged researchers to increase engagement with the autistic community, especially in the areas of mental health, experiences of childhood adversity, and resilience. Pellicano et al. (2014) noted funding for autism research did not align with the priorities and values of members of the autistic community such as autistic adults, parents of autistic children, and autism researchers in the UK. Participants in the study expressed interest in research regarding support services including everyday skill development, evidence-based interventions, post-diagnostic support, and employment support as well as increasing knowledge about autism including training of practitioners who worked with autistic individuals and disseminating accurate information to the public regarding the diagnosis (Pellicano et al., 2014). Participants reported being disappointed by current funding which focused primarily on biomedical research related to autism and less on what actually helped (Pellicano et al., 2014). One participant was quoted saying the funding patterns represented “neurotypical priorities regarding us – not autistic people’s priorities” (p. 760).

As early as 2009, ASAN founder Ari Ne’eman discussed partnering with the research community to reimagine the involvement of autistic individuals in the research process through a partnership with the Academic Autistic Spectrum Partnership in Research and Education (ASAN, 2009). The Facebook group Autistic Researchers Researching Autism (ARRA) was created in 2017 to address the concern regarding inadequate representation within the research field, and over the course of five years, membership increased to over 5,000 members (Autistic Researchers Researching Autism, n.d, para. 1). Additionally, the Participatory Autism Research Collective (PARC) founded by autistic researcher Damian Milton, worked to actively increase autistic participation in research by connecting autistic individuals with autism researchers (Participatory Autism Research Collective, n.d.).

Keating (2021) published recommendations for increasing participatory research involving autistic individuals which included ensuring increased support for participants who were non-speaking, minimally-speaking, or who had a learning disability, involving the autistic community in all stages of research from generating the research question, to designing the study, to data collection, and finally to making research results accessible to the autistic community by minimizing use of jargon and presenting the information in a variety of formats. Several recent research papers included autistic input. Angulo-Jiménez and DeThorne's (2019) study made use of an autistic consultant to assist in analysis of narrative samples to decrease neurotypical bias, and Oredipe et al.'s (2022) research included three autistic co-authors who collaborated with the group's five non-autistic members to develop and revise study measures and hypotheses. Studies like Angulo- Jiménez and DeThorne's (2019) and Oredipe et al.'s (2022) suggested the emergence of increased collaboration between researchers and the autistic community may be occurring.

Along with changes in the research field, the online world served as a vehicle for autistic representation. Using the hashtag #ActuallyAutistic, many autistic individuals shared experiences and perspectives with a wider audience than ever previously available. The prevalence of online technologies, reported by Ne'eman in 2010, already contributed to an increase in autistic self-advocacy, and in the years since, new technologies such as Zoom and other video conferencing services continued to remove geographic and communication barriers to self-advocacy. Leadbitter et al. (2021) shared several topics emerging from the increased self-advocacy taking place online. The topics included whether autistic individuals were to blame for the social difficulties each faced or whether the difficulties could better be explained as a mismatch in communication between groups of neurotypical and autistic individuals, referred to as the Double Empathy Problem by researcher Milton (2012); focused on the increased emphasis on quality of life and mental health interventions; and use of community preferred language to describe autistic people.

In addition, autistic advocates wrote about experiences with behavioral treatments such as ABA. An article by Lynch (2019) entitled "Invisible abuse: ABA and the things only autistic people can see" discussed observations of ABA videos available on YouTube and noted the instances where the autistic individuals in the videos were in distress or when the autistic child's attempts at communication were being ignored. In addition, McGill and Robinson (2020) conducted interviews of 12 autistic adults who had undergone ABA as children for at least six months. The participants shared perspectives on the common autism therapy and responses were analyzed using thematic analysis. The researcher determined further investigation into the concerns related to behavioral treatment of autism discussed by McGill and Robinson (2020) as well as other concerns raised by members of the autistic community was essential in understanding and empathizing with the approaches the autistic community would find more helpful and respectful.

Problems with Behavioral Approaches

As noted in the previous sections, McGill and Robinson (2020) and many other members of the autistic community raised concerns about the use of ABA with neurodivergent individuals as well as the use of behavioral principles in general. The researcher identified several trends in concerns with behavioral approaches to students with autism specifically related to masking of autistic characteristics, forcing eye contact, ableism and the relationship between ableism and mental health, time in behavioral interventions decreasing opportunities for other activities/supports, focus on compliance over autonomy leading to potential abuse, human rights, misunderstandings of executive functioning difficulties, and stim-suppression. The researcher further reviewed topics of interest to better understand how common SLP practices could have inadvertently caused harm to autistic individuals.

Masking

Masking, also known as camouflaging, compensation, passing, or adaptive morphing (Ne'eman, 2021; Pearson & Rose, 2021) was defined by Pearson and Rose (2021) as "the conscious or unconscious suppression of natural responses and adoption of alternatives across a range of domains including social interaction, sensory experience, cognition, movement, and behavior" (p. 53). In other words, masking could be described as the process of hiding or suppressing autistic characteristics to meet neurotypical expectations of socially appropriate behavior. According to Pearson and Rose's (2021) proposed model of masking, stressors responded to with a masked response instead of an authentic response were more effortful to sustain and caused the individual to disconnect from the body's internal cues and emotional state. The same author's noted sustained effort and disconnection from the individual’s internal state resulted in an increased stress response leading to long-term difficulties with identifying and regulating stress. Eventually, the individual reached what the authors termed a breaking point where burnout and mental health challenges, including depression, burnout, identity confusion, anxiety, suicidality, and self-harm occurred (Mandy, 2019; Ne’eman, 2021; Pearson & Rose, 2021).

The concept of masking had long been built into autism intervention with little regard for the negative harm masking created. Ne’eman (2021) commented how the medical model and autism intervention often defined successful intervention as helping an autistic individual become “indistinguishable from their peers” (p. 569) and therefore no longer met eligibility criteria for autism. While the application of the medical model lens may have made sense for a true behavioral issue, indeed autism itself continued to be diagnosed based on observable behaviors, given the consensus within the autistic community of autism as a neurological difference, not a disease to be “cured,” success under the medical model only served to document successful masking of behaviors, not any sort of underlying neurological change. In fact, masking behaviors were often not the sign of a healthy, happy autistic individual but instead of an individual who felt obligated to hide themselves out of a fear of alienation, bullying, and the threat of ostracism (Mandy, 2019). In addition, autistic masking possibly delayed or hid an autism diagnosis. Mandy (2019) suspected masking skills contributed to the uneven number of women and girls diagnosed as autistic compared to boys and men. Instead of judging treatment efficacy by how well therapists changed a person to fit in the environment, Mandy (2019) suggested focusing more on the environment the person is living in and examining how the environment could be modified to better accommodate the needs of the autistic individual. Under the neurodiversity framework, quality of life, not suppressing emotions and behaviors, was measured as a truly successful intervention.

Forcing Eye Contact

Many traditional therapy techniques and goals targeted eye contact and signaled attention to a conversation (Stewart, n.d.). The DSM-5 criteria authors included reference to eye contact and stated autism included “abnormalities in eye contact and body language” (American Psychiatric Association, 2013, para. A. 2), so under the medical model, increasing eye contact in a person who lacked the ability would be considered progress toward becoming indistinguishable from neurotypical peers. However, Ne’eman (2021) noted eye contact may not help autistic individuals with receptive language. In fact, eye contact often distracted from relationship building due to the difficulty of being expected to maintain neurotypical eye contact. One autistic adult interviewed about eye contact stated:

> Just because I am not making eye contact with you does not mean that I am not listening to you or paying attention to you. I can concentrate better not having to keep eye contact at the same time. I tell people, 'You have a choice. Do you want a conversation or do you want eye contact? You will not get both unless I am comfortable with you and do not have to concentrate so much on the eye contact. (Stewart, n.d., para. 12)

Another autistic individual described eye contact, “For me it can be a physical pain; it feels like burning with too many emotions, and I just can’t take it in all at once” (McGlensey, 2016, para. 11).

Additionally, recent research using magnetic resonance imaging (MRI) technology indicated eye contact did cause “abnormally high subcortical activation” (Hadjikhani et al., 2017, p. 1). Autistic individuals often reported using other ways to signal engagement or attention to a conversation other than eye contact (Ne’eman, 2021). One easy suggestion for determining autistic attention and interest in a conversation was to ask a question to see if the individual had been following along. Hadjikhani et al.’s (2017) researchers also suggested progressive desensitization to eye contact. Moriuchi et al. (2017), however, proposed difficulties with attention to eyes was related to gaze indifference, or indifference toward looking someone in the eye, instead of gaze avoidance, where eye contact was physically painful. While some debate remained regarding the underlying nature of difficulties with eye contact, by listening to the perspectives of autistic individuals, little compelling evidence existed to support behavioral goals for increasing eye contact to outweigh the potential harms of such goals.

Ableism and Mental Health

A commonly discussed challenge faced by neurodivergent individuals was ableism. Ableism was noted to occur with all disabilities. Examples included using deficit-based language, considering spoken language as the default vs. sign language or AAC, not providing accommodations such as a ramp for someone who used a wheelchair or a checklist for someone who struggled with executive functioning skills (Sanzo, 2021). Like racism, agism, or gender discrimination, ableism was presented in a variety of ways; as systemic, institutional, or on an individual basis, could be both intentional or unintentional, and caused trauma for the people who experienced ableism on a frequent basis. In a study of approximately 350,000 non-disabled individuals, Friedman (2019) found 70.9% of survey participants displayed some form of ableist prejudice, although many of the individuals displayed what was known as "aversive ableism," where individuals reported feeling positively toward disabled people but held implicit biases against disabled individuals (p. 109).

Dorsey (2021), an autistic SLP, contended, "Ableism is ingrained in our thought process due to the very nature of the field of speech-language pathology" (para. 1). The very idea SLPs were perceived as experts on communication was noted to be ableist in and of itself. Instead, Dorsey argued, SLPs needed to listen and support clients, not sit in judgement on the speech or language skills of others deciding who needs services. Additionally, Dorsey called on SLPs to engage in self-reflection and noticed implicit biases. Sanzo (2021) recommended SLPs work to combat ableism by focusing on language fluency over speech sound production, providing accommodations to individuals who needed them, creating opportunities for children with disabilities to identify peers or role models who were like them, and using strengths-based language instead of deficit-based terminology.

As previously discussed in the section on masking, autistic individuals faced a variety of mental health challenges such as burnout, depression, identity confusion, anxiety, suicidality, and self-harm at higher rates than neurotypical peers (Mandy, 2019; Ne'eman, 2021; Pearson & Rose, 2021). Hirvikoski (2016) reported higher rates of premature mortality in autistic individuals compared to society. One theorist attempted to explain the physical and mental health issues experienced by the population using the Minority Stress Model, a model often applied in non-disability-related spaces including race and gender. According to the Minority Stress Model, individuals in minority groups faced decreased social standing, which led to increased exposure to stressful situations and decreased resources to manage the stress in the stressful situations. Discrimination, ableism, and exclusion from social opportunities added to the stress the individual faced (Botha & Frost, 2020).

Stim Suppression

Another aspect of behavioral approaches objected to by the neurodivergent community was stim-suppression. Autistic individuals often engaged in self-stimulatory restricted repetitive behaviors, often referred to as "stims" or "stimming" by members of the autistic community (Charlton et al., 2021). Stimming behavior included repeated input for all senses and occurred through touch, movement, smelling, hearing, and vision (Charlton et al., 2021). Rocking, shaking limbs, picking at skin, sucking thumbs, jumping, pacing, humming, and fidgeting or "manipulating objects" were cited as common stims by autistic individuals (Steward, 2015). Younger school children were encouraged to use "whole body listening" which included "quiet hands," a widely used classroom management approach some argued forced neurodivergent children to mask authentic learning styles (Crossman, 2019). Charlton et al. (2021) noted stimming behavior was more common in younger autistic children and those with intellectual impairment. A 2010 study of autistic adults found only 30% of adults who stimmed as children had stopped stimming by adulthood (Chowdhury et al., 2010 as cited in Charlton et al., 2021, para. 10). Theories for the cause of stimming behavior included sensory regulation, emotional regulation, sensory overload, anxiety, and information deprivation (Boyd et al., 2012; Crossman, 2019; Charlton et al., 2021; Mottron, 2017).

Historically, ABA targeted stimming behaviors for reduction or elimination (Tereshko et al, 2021). Boyd et al. (2012) and Leaf et al. (2022) cited numerous older studies which indicated reducing stimming behavior led to increased desirable behaviors such as increased communication, improved response accuracy, and increased sitting behavior as a justification for encouraging stim suppression. While the Leaf et al. (2022) research team, which included at least two authors who reported to have played an "integral role in the seminal work of Dr. Ivar Lovaas" (Autism Partnership Foundation, 2022, para. 4), acknowledged the concerns raised by the neurodivergent community regarding stim suppression, the researchers nevertheless reported ABA interventionists would likely be required to address stimming behavior to "prepare their clients for the world in which they currently live, which is, unfortunately less accepting than desired" (p. 2845). The researchers advised ABA professionals to, at the least, teach substitute stims society would find more acceptable for individuals to use when needed. Pakutz (2019) shared insight as an applied behavioral analysis regarding the importance of identifying substitute stims for individuals who engaged in self-injurious stims such as head banging or self-harm or societally unacceptable stims such as public masturbation.

While some behavioral professionals claimed to only address harmful stims, many autistic individuals shared stories about restraint and punishment for otherwise harmless behaviors. Several studies documented the experiences of stimming from the perspective of autistic individuals. Charlton et al. (2021), used self-report to gain insight into the perception of stimming behavior among autistic and non-autistic individuals. The researchers identified stim suppression as a common theme among all participants. Many autistic participants (76.5% of those diagnosed as autistic and 74.6% of suspected autistic participants) reported changing preferred stims to be more socially acceptable compared to only 40.5% of non-autistic participants (Charlton et al., 2021, p. 6). Autistic adults also reported the use of substitute stims to be less satisfying and requiring greater effort than preferred stims. The data supported findings from other researchers (Cage et al., 2018; Livingston et al. 2019 as cited in Charlton et al., 2021) on the negatives of masking and attempting to appear “normal” within the autistic population. Social pressure to change led to negative emotions such as rejection, shame, and sadness. Overall, autistic adults reported stim suppression led to negative emotions as well as confusion and decreased concentration (Charlton et al., 2021). Leadbitter (2021) expressed concerns about the elimination of stimming behavior leaving autistic children unable to self-regulate during emotionally intense or aversive experiences, and Kapp (2018) recommended incorporating the views of autistic self-advocates regarding repetitive movements as a form of self-regulation into future research efforts.

In contrast to negative experiences of individuals suppressing stims, Crompton et al. (2020) observed a sense of relief and relaxation when autistic individuals felt free from judgement about stimming. One participant reported “It’s fab when we get together, autistic space is so validating compared with the outside world, it’s wonderful to see people stimming away without feeling self-conscious" (p. 1445) and another participant stated, “Autistic people make me happy flap” (p. 1445). A strategy agreed to by both autistic individuals and ABA researchers was to work on identifying the underlying cause of a stim and working to modify the sensory environment so the need for stimming was lessened (Boyd et al., 2012; Charlton et al., 2021; Crompton et al., 2020; Leadbitter, 2021; Pakutz, 2019).

Neurodiversity Affirming Practices

Several different models, frameworks, tools, and strategies appeared in the literature related to neurodiversity affirming practices. For the purposes of the literature review, the term neurodiversity affirming practices was used to describe approaches aligned with all or most of the tenants of the neurodiversity movement and could be implemented without harmful behavioral components. The scholar practitioner organized neurodiversity affirming practices into broader theories or models as well as more specific tools or strategies and reviewed specific literature related to each approach.

Models

Strengths-Based Approach. One of the most cited models for autism intervention and assessment was using a strengths-based approach (Donaldson et al., 2017; Mottron; 2017; Wong et al., 2018). Instead of requiring “prerequisite behaviors” such as eye contact, imitating faces, remaining seated face-to-face with a teacher, and refraining from repetitive movements, Mottron (2017) advocated for using a strengths-based approach to build language and identified several traits of autistic language learners that contrasted with non-autistic language learners noting while speech and communicative language were often delayed in autistic children, written decoding, especially in the case of hyperlexia, could often be considered a strength. By focusing on pairing communication with “non-social oral language and written linguistic structures,” therapists and autistic families were encouraged to work with the autistic child’s strengths rather than attempting to teach unnecessary and frustrating “prerequisite” skills autistic children may not exhibit. Mottron’s (2017) advice was consistent with established best practices in Augmentative Alternative Communication (AAC), which also argued for access to non-speech modalities for language stimulation and modeling as well not requiring prerequisites behaviors (such as eye contact or joint attention) prior to introducing AAC systems (National Joint Committee for the Communication Needs of Persons with Severe Disabilities, n.d.).

In addition, Mottron (2017) advocated for using restricted interests and repetitive behaviors as the basis for an autistic child's educational program instead of attempting to control thoughts and actions. Donaldson (2017) also suggested using the interests of autistic children to help build meaningful relationships with peers, while incorporating special interests and passions for topics were suggested to make up for deficits in other academic areas such as reading. Donaldson (2017) also noted how tapping into an autistic individual's interest in specific topics could lead to improved quality of life and feelings of self-efficacy due to increased social interactions with peers regarding preferred topics and involvement in activities outside of the home and school day.

Several programs allowed neurodivergent individuals to find others with similar areas of interest and participate in activities based on a shared interest resulted in authentic relationship-building between neurodivergent individuals (Denworth, 2020). For example, a program through the Brooklyn Museum of Transportation connected autistic students passionate about trains and subways. The children engaged in games and activities using train-based vocabulary, which drew upon the children's interests resulting in peer interaction (Fagan, 2017). Wainer et al. (2010) used a robotics class to encourage collaboration among autistic students. Another program documented increased opportunities to practice social skills during an adult hosted Minecraft server (Zolyomi & Schmalz, 2017).

Autistic individuals expressed the comfort each felt in being in groups of individuals who understood the experiences. One autistic individual in Denworth's (2020) article described friendships with autistic peers by saying, "You don't have to explain anything to anybody. The people who can tolerate more sound are the people who brought their earplugs [and] face[d] the crowd. The people who cannot face the wall. Those relationships are treasured for me" (para. 24). The researchers indicated autistic peer groups created an opportunity to support autistic individuals through a neurodiversity lens (Crompton et al., 2022). By creating spaces and opportunities where authentic and highly valued relationships organically developed, through shared interests and strengths, adults made meaningful improvements in the quality of life aligned with current understandings of autism.

SCERTS Model. A second model generally accepted by the neurodiversity community was SCERTS. The SCERTS model assessed an individual's performance in three specific areas: social communication (SC), emotional regulation (ER), and transactional support (TS). The model included rating scales in each area used to track progress on a variety of skills over time. The original overview of the model published by creators Prizant et al. in 2003 outlined the need for a "comprehensive, multidisciplinary approach to enhancing communication and socioemotional abilities of children" (p. 298). The model was innovative for not only focusing on the autistic individual's interaction with the world but also including the role of others in the individual's environment and looking at the child as a whole person (Prizant, 2003). While the model discussed emotional self-regulation, discussions of emotional co-regulation or mutual regulation, where an individual received comfort and regulatory support from another individual, perhaps a teacher or parent were also included. The model’s transactional support section also considered family and professional support required to support the intervention including stress management, educational opportunities, and emotional support for caregivers. Yu and Zhu (2018) found improvements in social communication and emotional regulation after brief (five- or ten-month) SCERTS interventions. A parent in the study stated, “The training [of the SCERTS model] remind[ed] me to pay more attention to my child’s emotions and behaviors, and more importantly, to interpret these behaviors in a new way” (Yu & Zhu, 2018, p. 3802).

Additionally, a randomized controlled trial study comparing a classroom-based SCERTS intervention (CSI) program to a more traditional online, module-based professional development course in autism best practices was implemented across 70 public schools (Morgan et al., 2018). CSI intervention resulted in improved social participation, adaptive communication, social skills, reduction in problem behavior, and executive functioning compared to students whose teachers received the online professional development modules (Morgan et al., 2018). Although the program revealed positive early outcomes, additional research conducted by individuals outside of the original developers was recommended to strengthen the evidence base for the intervention (Wisconsin Department of Health Services Treatment Intervention Advisory Committee, 2018).

Trauma-Informed Care. A third approach often incorporated into neurodiversity-affirming therapy was trauma-informed care. A trauma-informed approach to working with individuals encouraged health care and social service workers to shift focus from identifying what was wrong with a person to identifying what happened to the individual. The approach revealed the trauma many individuals experienced throughout life and educated professionals on ways to recognize trauma in others and help others avoid re-traumatization (Menscher & Maul, 2016). Suggested strategies for medical professionals included allowing a person to bring a family member or trusted friend into the room for an interaction with a medical professional, being understanding if an individual resisted a treatment suggestion, and making space for and encouraging self-advocacy (Tello, 2018).

While a trauma-informed approach was not designed specifically for use with neurodivergent populations, individuals with autism were found to have an increased exposure to traumatic events (Berg et al., 2016; Berger et al., 2021; Heselton, 2021; Lobreght-van Buuren et al., 2021; Peterson et al., 2019). Logbreght-van Buuren (2021) noted trauma was frequently overlooked in autistic individuals. Peterson et al. (2019) cited earlier findings from Hibbard and Desch (2007) and Reiter et al. (2007) indicated individuals with developmental disabilities, such as autism, experienced up to three-fold increase in risk of exposure to trauma compared to typically developing peers. Some proposed theories to explain the prevalence of trauma included communication deficits, cognitive disabilities, differences ins social interaction, difficulty reading nonverbal cues resulting in increased risk of misunderstanding the intent of others seeking to do harm, bullying, increased risk of psychiatric hospitalization, challenging behaviors and attempts by others to manage the behaviors (Peterson et al., 2019). In a metanalysis of multiple studies focused on PTSD and autism, Rumball (2019) noted the most common traumatic events experienced by study participants was abuse or assault. Additionally, increased cortisol responsivity in reaction to stress and a greater length of time for elevated cortisol to return to base levels following a stressful event as well as generally elevated cortisol levels during play suggested autistic individuals experienced elevated stress levels compared to neurotypical individuals. Finally, characteristics of autism such as sensory sensitivities, sensory aversions, peer rejection, and outside attempts to control restricted or repetitive behaviors were hypothesized to lead to chronic exposure to stress and anxiety (Peterson et al., 2019).

Trauma-informed care led into one of the key suggested areas of emphasis for speech-language pathologists using a neurodiversity affirming approach: self-advocacy (Therapist Neurodiversity Collective, 2022b). Autistic adults described traumatic experiences each endured during behavioral procedures. Such experiences included trusted adults ignoring attempts to communicate, removing the right to refuse or decline a task, and physical prompting that denied the individual autonomy (Leadbitter et al., 2021). Strategies such as providing individuals with systems to communicate abuse, advocate for themselves, and make autonomous choices were identified as a key need in helping to reduce the trauma experienced by autistic individuals (Leadbitter, 2021). Heselton (2021) advocated for helping autistic individuals develop resilience and recognizing the unique presentations of anxiety within the autistic community. Signs such as increased stimming, social avoidance, or dysregulated behavior often attributed to autism could be autistic presentations of underlying anxiety (Heselton, 2021).

Berger et al. (2021) listed several trauma-informed frameworks including the Substance Abuse and Mental Health Services Administration (SAMSHA) framework, Trauma-Informed Positive Education (TIPE), and the Attachment, Regulation, and Competency (ARC) framework. While Berger et al. (2021) acknowledged further research was needed to assess the application of trauma-informed principles with autistic children, modifications such as use of visual aids, social stories, increased ways for individuals to communicate sensory or environmental distress were proposed as beneficial modifications to trauma informed interventions. Additionally, teacher education on appropriate interventions for students exposed to trauma and those identified as autistic were recommended to improve mental health among students and reduce teacher burnout. Benevides et al. (2020) surveyed 350 autistic adults and identified trauma as the number one mental health priority among participants. Among focus group participants, 69% of participants endorsed increased research on psychological therapies including trauma-informed care, suggesting the approach was both needed and desired within the community (Benevides et al., 2020, p. 827).

Collaborative and Proactive Solutions (CPS). A fourth, well-accepted framework for use with neurodivergent populations was Dr. Ross Greene’s CPS approach. The model encouraged parents and children to work together and listen to one another to come up with collaborative solutions to ongoing problems (Lives in the Balance, n.d.a; Maddox et al., 2018; Tschida et al., 2021). The California Evidence-Based Clearinghouse for Child Welfare (2021) identified CPS as “supported by research.” Although initially intended for use with children with opposition defiant disorder and ADHD, recent researchers investigated the application of the CPS framework to autistic populations (Maddox et al., 2018; Tschida et al., 2021). Maddox et al. (2018) cited an earlier study by Simonoff et al. (2008) who noted nearly 30% of autistic students also met the criteria for oppositional defiant disorder (ODD) based on parent interviews (p. 900).

Application of the model required three key steps. The first key step was recognizing the need for and making a “lens change” (Lives in the Balance, n.d.). Instead of considering a student defiant, unmotivated, the product of poor parenting, or controlling, adults were encouraged to consider the underlying causes contributing to difficulties meeting expectations. Instead of trying to control behavior and believing problems should be solved unilaterally by adults, a practice termed “Plan A” by Dr. Greene, adults were encouraged to see how working collaboratively, “Plan B,” resulted in better outcomes (Lives in the Balance, n.d.). Greene’s overall philosophy was summarized as “kids do well if they can” (Lives in the Balance, n.d., para. 1) instead of the more popular way of thinking on the part of educators and parents where disruptive behaviors were attributed to conscious choices made by children (as cited in Lives in the Balance, n.d.). The director of the Think: Kids program in Boston, Dr. Stuart Ablon, stated “I have yet to meet a kid who prefers doing poorly to doing well” (Youth Villages, 2016, para. 11). Instead, Albon noted the relationship between toxic stress on the developing brain and the harm toxic stress created in the development of cognitive flexibility, frustration tolerance, and problem-solving skills (Youth Villages, 2016). Adults and children who shifted perspectives were able to enter problem-solving discussions without judgement, preconceptions, or defensiveness about what the other person needed.

Instead of entering a discussion by telling the child what the child needed to do differently, the second step of the CPS approach encouraged adults to “drill down” or “swim further upstream” to identify the true causes for the behavior and identify lagging skills and unsolved problems through adult completion of a form called the Assessment of Lagging Skills and Unsolved Problems (ALSUP). Examples of lagging skills included "difficulty persisting on a challenging or tedious task," "Difficulty shifting from original idea, plan or solution, [or] difficulty appreciating how their behavior is affecting others" (Lives in the Balance, 2020a, para 3). Unlike other behavioral programs, the ALSUP form was clear lagging skills were not the focus of intervention and discussing or teaching specific skills was not a part of the program. However, the hypothesized lagging skills were intended to focus the adult(s) involved in the process on how to identify and phrase the specific task the child was struggling to perform (Lives in the Balance, 2020a).

In step 3, children and parents worked together to create a "Plan B" to solve the unsolved problem. The process closely resembled the beginning of the design thinking process, first beginning with the empathy step followed by the defining the problem step. Sentence frames were provided including "I've noticed that...insert unsolved problem.... what's up?" to start the empathy step and "The thing is (insert adult concern)" (Lives in the Balance, 2020b, paras. 1-3). Once both parties agreed on the importance of solving the unsolved problem, the invitation step began, and the team worked together to generate possible solutions (Lives in the Balance, 2020b). By following the Plan B process, not only was a mutually agreed-upon solution identified, lagging skills were indirectly practiced and applied as the child moved through the various steps of the process (Oberg, 2021).

Tschida et al. (2021) identified while ABA and medication was the most accessed means for addressing the behavioral difficulties often experienced by families of autistic children, CPS and medication were identified as "significantly more helpful" in decreasing problem behaviors among autistic children with a caregiver reported IQ of greater than 70 than a variety of other techniques. Of caregivers surveyed, 31.2% identified CPS as “potentially useful” (Tschida et al., 2021, p. 9). Given the autistic community’s well-documented opposition to ABA and medical attempts to treat autism as well as the desire for treatments supportive of autonomy and self-determination, CPS was a promising, evidence-based intervention considered mutually acceptable to both autistic individuals and families (Maddox, 2018; Tschida et al., 2021).

Self-determination theory (SDT). SDT, a framework initially developed by researchers Deci and Ryan in the 1985 book *Intrinsic Motivation and Self-Determination in Human Behavior* (as cited in O’Hara, 2017), closely mirrored many of the key concepts of CPS. As opposed to ABA, which prioritized rewards to reinforce desired behavior, SDT focused on building intrinsic motivation within individuals (Deci & Ryan, 1985, as cited in O’Hara, 2017). According to SDT, intrinsic motivation was driven by three main psychological factors, a need for autonomy, competence, and relatedness (Goldfarb et al., 2021). While behavioral approaches could motivate individuals, Deci and Ryan found extrinsic reinforcement possibly undermined an individual’s opinion about the value of a task being performed. Instead, relationships with others (relatedness), ability to make choices for oneself (autonomy), and a sense of being able to contribute to those around them (competence) motivated people to persist better than rewards and punishments (Deci & Ryan, 1985, as cited in O’Hara, 2017).

According to SDT, adolescents and young adults developed skills necessary to control their own lives through opportunities to set goals, make decisions, self–monitor, self-regulate, self-advocate, and self-reflect (Cheak-Zamora et al., 2020). Self-determination learning theory included both building capacity, or knowledge and skills to allow students to be self-determined, as well as providing opportunity, or chances for the students to practice and apply the skills being acquired (Chou et al., 2017a). Chou et al. (2017b) determined autistic students scored significantly lower on a measure of autonomy compared to students with intellectual disabilities or learning disabilities. Autistic adolescents and young adults often struggled with executive functioning skills, and reliance on routine, schedules, and caregiver planned activities meant autistic individuals had fewer opportunities to develop self-determination skills (Cheak-Zamora et al, 2020). Additionally, Chou et al. (2017b) suggested social skill differences in autistic students could further decrease opportunities for self-determination.

Chou et al. (2017b) referenced several studies indicating the importance of encouraging self-determination in students with disabilities as a component of a special education program and of the importance of inclusion in the general education setting to create opportunities to practice self-determination skills. Tiered interventions, visual supports, instruction in self-regulation, and intentional provision of opportunities for students to make choices and control the environment were suggested to support autistic students with a variety of self-determination skills (Chou et al., 2017b). Two assessments of self-determination skills, The Arc’s Self-Determination Scale (SDS) and the AIR Self-Determination Scale (AIR) were identified as reliable and valid measurements of self-determination capacity and opportunity in autistic middle and high school students (Cheak-Zamora et al., 2020, Chou et al., 2017a).

Once entering the working world, self-determination skills appeared related to the ability to maintain employment, a frequent challenge among autistic adults (Goldfarb et al., 2021). Goldfarb et al. (2021) identified how the lens of the three psychological needs associated with internalized self-determination, competence, social-relatedness, and autonomy, could be utilized to help autistic individuals find meaning in the work setting. Interventions designed to support autistic employees with advocacy for needs and accommodations as well as opportunities for autonomy within the workday, provision of clear instructions and expectations to support competence, and supportive, collaborative, respectful communication between the autistic employee and the employer were all suggested ways to increase self-determination and internalized motivation in autistic individuals (Goldfarb et al., 2021). By approaching intervention through the lens of SDT, providers better supported the self-determination skills of autistic adolescents and adults as individuals transitioned from school to the working world.

Tools/Strategies

In addition to neurodiversity-affirming models of intervention, researchers indicated many promising neurodiversity-affirming tools and strategies. A collection of free tools was created out of the partnership between SCERTS originator Laurent and autistic researcher Fede. The tools included a checklist for writing neurodiversity affirming goals (Laurent & Fede, 2022), an energy meter designed to help neurodivergent individuals assess individual energy states at a given time and determine what energy level was needed to complete a given task (Laurent & Fede, 2019a). A checklist entitled "The Regulator 2.0" for students to self-assess sensory input deemed helpful for increasing or decreasing energy (Laurent & Fede, 2019b), and visual supports for autistic developed strategies for self-regulation (Laurent & Fede, 2022). The researchers also created a product entitled "All the Feelzzz," a deck of cards designed to help neurodivergent individuals communicate bodily sensations to others using language and imagery autistic individuals identified as more meaningful than traditional pain scales or verbal language (Autism Level UP!, 2022).

Several programs aimed to educate autistic individuals about the diagnosis of autism. Autistic author Helen Clark created a program focused on wellbeing of autistic women and girls through self-awareness and development of positive self-identity entitled Spectacular Girls and wrote a book called “Supporting Spectacular Girls” (Clark, n.d.) Another program entitled PEGASUS (short for Psychoeducation Group for Autism Spectrum Understanding and Support) found autistic 9–14-year-olds without intellectual disability enrolled in the program demonstrated greater awareness of personal strengths and difficulties related to autism and more general knowledge about autism followed participation in the program. The researchers also found no decrease in participants’ self-esteem because of learning more about the nature of the diagnosis. (Gordon et al., 2014). Self-disclosure was also a helpful technique for many autistic individuals (Cage & Troxell-Whitman, 2020). Hammer (2016) encouraged parents and professionals to allow opportunities for autistic individuals to practice autonomy and self-advocacy skills through active participation in IEP meetings and creation of PowerPoint’s sharing goals, needs, and accommodations with the educational team. Donaldson et al. (2017) also recommended involving autistic individuals in the goal setting and goal-monitoring process.

Two strategies encouraged SLPs to help play the role of facilitating communication between neurotypical and neurodivergent cultural groups. Lobsey (2022) identified several potential roles for neurodiversity affirming SLPs to play in dismantling ableism within the field. Specifically helping clients to develop positive self-identities and to confront internalized ableism, supporting neurodivergent individuals through life transitions, ensuring access to inclusive education, literacy, and a robust AAC system, standing up against environments or systems known to cause harm, helping autistic individuals to advocate and exercise autonomy, building connections between peers, and educating families the importance of encouraging the development of consent, autonomy, and control among neurodivergent family members. Vidal et al. (2018) proposed a strategy called behavioral interpretation where a professional serves as a translator between two individuals of different neurotypes, a similar role to a translator between speakers of two different languages or between hearing and deaf individuals. In the intervention, the SLP made comments about a non-speaking autistic individual’s action and hypothesized about the meaning behind the non-verbal behavior being shown to the speaking, neurotypical play partners. Relatively quickly, the neurotypical peers began to show increased attention to the non-speaking autistic study participant and provided narrations and hypotheses for what the autistic individual was doing. The authors suggested the technique may be a strengths-based approach to try, specifically with non-speaking individuals, to increase socialization with peers. Vidal et al. (2018) also proposed professionals who tried to immerse themselves in autistic culture could translate bidirectionally, interpreting the possible thoughts and behaviors observed in both the neurotypical and neurodivergent play partners, perhaps with the use of visual supports and/or connections to preferred topics to translate neurotypical practices into relevant content for the autistic partner.

Several tools showed promise related to supporting parents of autistic children. A study entitled REACH-ASD led by researchers Green and Leadbitter was underway at the University of Manchester focused on supporting parents of children who had recently been diagnosed with ASD. The intervention at the center of the study, EMPOWER-ASD, followed a model of Acceptance and Commitment Therapy (ACT), which the researchers reported had substantial evidence of improving adult mental health. The program encouraged parents to validate emotions, engage in mindfulness, and focus on parenting values. While the results were still pending at the time of the researcher's study, Green and Leadbitter reported similar "manualized psychoeducational programmes" had been met with early support (REACH-ASD, n.d.). Early research involving the SOLACE program (Lodder et al., 2020), an intervention designed to create protection against the harms of internalized stigma related to autism while increasing self-compassion, suggested the program was well-received by parents who participated. The intervention included lectures, videos of other parents of children with autism, opportunities for sharing personal experiences, group discussion, and guided activities. Mental health scores increased within the group of parents receiving the SOLACE intervention and stigma and self-stigma scores decreased (Lodder et al., 2020).

A third program for parents, the Systematic Autism-related Family Enabling (SAFE), consisted of five 3-hour sessions (McKenzie et al., 2020). The researchers used an assessment called SCORE-15 to measure the mental health of families including the ability to cope, communication within the family, and ability to overcome difficulties. Scores in the study's initial feasibility study showed a noticeable positive change in SCORE-15 scores, especially among caregivers with relatively high anxiety. Additionally, parents reported qualitative data indicating the intervention helped with mental health. One parent reported, "Actually being able to hear that I'm doing OK and actually not as bad as what I thought I was, was nice. It was something that helped me with my mental and emotional state" (McKenzie et al., 2020, p. 8). A final parent-based intervention was PACT (Aldred & Green, 2019). The PACT intervention involved recording videos of parents interacting with their autistic children. Parents then watched the videos with a therapist who helped parents learn to recognize key moments in the parent-child interactions and extend the child's communication skills in as little as 30 minutes per day. While language skills did not improve through the intervention, parents reported fewer distressing symptoms related to autism and gains were observed in parent-child interaction. Gains were maintained over 6 years following the initial intervention (Aldred & Green, 2019).

Relationship to the Field of Speech-Language Pathology

In a 2005 position statement on Evidence-Based Practice, ASHA defined evidence-based practice as "an approach in which current, high-quality research evidence is integrated with practitioner expertise and client preferences and values into the process of making clinical decisions" (para. 1). Similarly, in the ASHA Code of Ethics (2016b), the first rule of ethics indicated SLPs should "hold paramount the welfare of person they serve professionally..." (Principle I)[and] shall use independent and evidence-based clinical judgment, keeping paramount the best interest of those being served" (Principle I, Section M). However, despite widespread condemnation of ableist practices coming from the neurodiversity community, many SLPs continued to evaluate individuals, write IEP goals, use ableist terms and language, implement services, and otherwise make clinical decisions in direct conflict with the preferences of the neurodivergent community (DeThorne & Gerlach-Houck, 2023). Continuing to adopt behaviorally based practices when alternative neurodiversity-affirming practices aligned with community values were available had the potential to damage the profession’s ethical credibility and cede the profession’s expertise in communication by refusing to listen to the voices of the individuals being served and refusing to advocate for the true needs of the neurodivergent community.

Gaps in Current Research and Areas of Need for Future Research

While substantial evidence and anecdotal reports from autistic individuals indicated the importance of neurodiversity-affirming practices, and while a study by Unger et al. (2021) indicated over 91% of interviewed SLPs identified social justice as important to the profession (p. 2003), one area of need for future research identified in the review of the literature was how frequently adoption of neurodiversity-affirming practices occurred among working SLPs and what barriers existed to making changes. Unger et al. (2021) identified three barriers to general social justice efforts within the profession related to time (62.7%), resources (65.6%) and finances (70%) (p. 2003). However, neurodiversity-affirming practices appeared unlikely to be hindered by the three barriers alone. The researcher-hypothesized barriers to adoption of neurodiversity-affirming practices included lack of knowledge of the concerns of the autistic community, structural and systemic barriers created by special education laws and processes, state eligibility criteria, staffing challenges in public schools, parent and SLP perceptions of best practices, and teacher/SLP preparation programs required for certification in the field of education. However, no research was found to determine specifically where the breakdown occurred.

Additionally, while research and literature on how change within systems were facilitated (Hayes, 2022) and how to support professionals through professional development (Densten & Gray, 2021) were found, no existing research was located focused on programs to support SLPs through the transition to neurodiversity-affirming practices and through navigating the push-back SLP's would likely face from parents, staff, and administration who may not be educated on the need to adopt such practices. Given the gaps in the research, the scholar practitioner determined further investigation into the systemic and personal barriers associated with adoption of neurodiversity-affirming practices as well as strategies to facilitate adoption of specific practices among working SLPs was essential for the profession to move forward while following the profession's own model of evidence-based practice.

Summary

The author reviewed literature related to neurodiversity, specifically as related to the field of autism. The literature included information about the neurodiversity movement, documented problems with behavioral approaches to therapy, outlined several neurodiversity-affirming practices and models currently available to clinicians, and identified gaps in the research related to why neurodiversity-affirming practices lacked wider adoption within the field of speech-language pathology and how to support SLPs in the transition to using neurodiversity-affirming practices to align with the ethics and evidence-based practice guidance provided by the ASHA. By considering autistic voices and incorporating input from the autistic community into the services SLPs offered, the scholar practitioner believed SLPs could provide more equitable, respectful, and culturally responsive support to truly address the needs of the autistic community.

Chapter Three: Methodology and Results

Problem Statement

Autistic self-advocates argued the medical/deficit-based model of disability did not adequately address the needs of the autistic community, leading to masking of autistic traits, burnout, and mental health issues (Bogart et al., 2018; Bradley et al., 2021; Cage & Troxell-Whitman, 2020; Hull et al., 2021; Leadbitter et al., 2021; Lynch, 2019; McGill & Robinson, 2020; Ne'eman, 2021; Pearson & Rose, 2021; Roberts, 2021; Sandoval-Norton et al., 2021; TEDxTalks, 2019a, 2019b.). However, the training of many speech-language pathologists (SLPs) required the use of the medical/deficit-based model of disability when planning and providing therapy. The researcher sought to bring the two groups together to help SLPs adapt perspectives to increase alignment with the autistic community.

Design Thinking Process

The researcher decided to use a design thinking approach to address the problem statement. The design thinking process was a creative problem-solving process consisting of five stages: empathize, define, ideate, prototype, test (Gallagher & Thordarson, 2020). Although the process existed in product design circles for years, application in the field of education was relatively new and "part of the broader project-based learning educational model" (Iowa State University, n.d., para. 1). Several advantages to design thinking included the process's accessibility to a wide audience (Gallagher & Thordarson, 2020), the process's continued focus on the needs and experience of end users, and the process's ability to generate outside of the box ideas using collaborative techniques (Liedtka, 2018).

In the empathy stage of the design thinking process, the design team worked to understand the perspective of the end-user and other stakeholders involved with the problem; designers were encouraged to “fall in love with the problem” (Gallagher & Thordarson, 2020, p. 14), immersing themselves in the problem while engaged in activities such as interviewing a user, conducting observations, gathering existing data such as journals, reading body language, or administering surveys for the designer to truly understand the problem (Hastings, 2018a). Data obtained could be both qualitative and quantitative in nature (Hastings, 2018a). In the empathy stage, the designer’s goal was to empathize with the end user without biases or preconceived notions and understand the situation from the user’s perspective (Hastings, 2018a).

In the define stage, the design team examined and interpreted the data collected from the empathize phase to focus on a specific problem and created a problem statement or Point of View (POV) statement (Gallagher & Thordarson, 2020; Interaction Design Foundation, n.d.). Techniques included affinity diagrams, interpretation of surveys, identification of qualitative trends or patterns in interviews, and analysis of quantitative or qualitative survey data. Ultimately, the design team converged on a definition of the problem stated in the format of a question starting with “How might we...?” to focus the efforts of the group on the defined problem (Hastings, 2018b).

In the ideate stage, designers and stakeholders worked together to generate as many ideas as possible. Designers employed many different creative and fun brainstorming techniques to collect the ideas, but the goal was to generate as many ideas as possible without worrying about the practicality of the ideas at a given time (Hastings, 2018c; Interaction Design Foundation, n.d.). Sometimes the most random, outside of the box idea turned out to be the best idea, so keeping an open mind and not focusing too much on the reasons an idea may not be feasible was critical during the ideate stage.

In the prototype stage, the designer presented users with low-fidelity prototypes of potential solutions to a problem and sought input on the prototypes (Hastings, 2018d). The goal was not to create a fully functional model of a final product but to help the users visualize the possibilities and offer feedback. Simple models made from paper, wire-frame models, or sketches were used to give the user an idea of what the final product may look like without investing too much time and energy (Interaction Design Foundation, n.d.). Gallagher and Thordarson (2020) described a prototype as “relevant, rapid, and rough” (p. 15). During the prototyping phase, designers had to be open to reexamining the information from earlier phases and/or be willing to scrap prototypes all together should errors exist in the design (Hastings, 2018d).

Once a prototype had been selected to move forward in the process, the researcher shifted to testing the proposed solution to see if the prototype addressed the problem and worked as intended. At some point, a product needed to be created and put out into the world (Hastings, 2018e). Getting the voices of the stakeholders and end users was key during the testing stage as was examining data collected once the product was out. A focus group could be used to gather input along with both quantitative and qualitative data collection research tools such as surveys or open-ended questions. The scholar practitioner found testing resulted in further cycles through the design thinking process as changes were made to the solution based on the results obtained during the test phase. Hastings (2018e) described the ongoing refinement process of a product using design thinking as "the infinite loop," often described in education as the process of continual improvement.

Empathy Phase

During the empathy phase, the scholar practitioner developed several questions to investigate related to the problem statement (see Table 1) to better understand the context of the situation from multiple perspectives.

Table 1

Research Questions for Empathy Interviews

Research Questions
1. How, if at all, are SLPs responding to the shift toward neurodiversity-affirming practices in therapy?
2. How, if at all, are members of the broader educational field responding to the shift toward neurodiversity affirming practices?
3. What barriers, if any, are impeding the adoption of neurodiversity affirming practices among SLPs?
4. How, if at all, do administrators within the CWSD view neurodiversity, specifically as it relates to the role of SLPs?
5. How, if at all, do employers view neurodiversity, specifically as it relates to the role of SLPs?
6. How, if at all, do parents within the CWSD view neurodiversity, specifically as it relates to the role of SLPs?

Empathy Research Question 1: How, if at all, are SLPs responding to the shift toward neurodiversity-affirming practices in therapy.

To answer the first empathy phase research question, the researcher decided to investigate what information SLPs were being presented related to the topic through the profession’s national organization.

The researcher observed several videos previewing professional development opportunities and parent education. All videos were publicly available on YouTube on the official account of ASHA, the national credentialing organization for SLPs. Once the video source had been selected, the researcher performed a search using the term "autism" to filter the videos. Then, videos were further narrowed down to eliminate short videos containing minimal content and to focus on videos addressing intervention. From the resulting videos, five videos were selected for observation spanning the years between 2011 and 2018 (See Table 2).

Table 2

ASHA YouTube Videos on Autism

Video Label	Video Title	Presenter(s)	Length (min.)
Video 1	*Diane Paul: Red flags for autism*	Dr. Diane Paul	1:53
Video 2	*Autism spectrum disorder: Interventions for communication and learning*	Dr. Sylvia Diehl	2:32
Video 3	*Effective interventions for young children with ASD*	Dr. Patricia A. Prelock	3:40
Video 4	*Kids and autism: How speech-language pathologists help*	unidentified narrator	2:04
Video 5	*SIG 1 Perspectives, part 2: Autism introduction*	Dr. Laura DeThorne Dr. Kelly Searsmith	9:08

All five videos had female narrators, consistent with the fact the strong majority (96%) of SLPs at the time of the study were female (ASHA Leader, 2019). The videos were analyzed in chronological order based on release date to observe how changes occurred over time across the same source. Of note was the lack of videos related to autism published on the ASHA YouTube channel since 2018, even though the channel continued to publish video content related to other areas.

One of the key words appearing several times across the various observations was "problems." Paul, the author of Video 1, repeatedly referenced the problems people with autism faced in many areas. The presenter in Video 2 referred to the problems in therapy the presenter hoped to address through the course. Video 4 author again used "problems" to point out areas of difficulty related to social skills and eating, and the presenter also referred to "trouble" with communication skills. In contrast, the individual presenting in Video 3 used more neutral terminology referring to treatments "making a difference" and focusing on "goals and objectives." Like Video 2, the presenter in Video 3 also addressed the "challenges" SLPs faced. DeThorne and Searsmith in Video 5 took the most positive outlook toward autism, referring to "autistic traits" instead of "problems" or "deficits" and stressing the importance of listening to what autistic people were communicating about the presenter's experiences in whatever modality the individuals chose to communicate compared to focusing on communication problems or deficits and prioritizing oral speech. One of the presenters also expressed personal concerns with what the author termed a "deficit perspective" of autism.

Another frequently appearing term across the videos was "evidence-based practice." Deihl discussed the use of evidence-based interventions when the presenter stressed the desire to "unpack the science for them [participants] so that they really use science in their everyday therapy" (ASHA, 2015, 0:55). The participant from the course became visibly excited and animated when recounting discovering one of the strategies described by Prelock being used with the participant's students based on research. Prelock referenced the importance of evidence throughout the talk, stressing how the information shared was based in research and encouraging SLPs to view themselves as "scientist practitioners first and foremost" (ASHA, 2017a, 1:15), encouraging course participants to track performance of the children each speech language pathologist worked with over time. Prelock concluded the video by stressing the "evidence" course participants would be able to see regarding increases in children's joint attention, theory of mind, and perspective taking, among other skills. Video 5 focused less on research to inform evidence-based practice, although the research was discussed at the end of the video related to the publication being discussed. Instead, DeThorne in Video 5 stressed listening to the voices of autistic individuals and weighing each perspective when determining what steps to take. While not mentioned in either of the parent-oriented videos (Videos 1 & 4), SLPs appeared highly enthusiastic about evidence-based practice, especially in the earlier videos.

Consistent with findings from the researcher's review of the literature, changes were noticeable over time in terms of terminology, inclusion, and recommended models of intervention with a subtle but slow shift toward neurodiversity affirming practices observed. One component of the theme was a transition towards identity-first language (autistic children) from person first language (children with autism). While the first four videos made use of person-first language, Video 5 was the first to specifically address the use of identify-first language. While DeThorne preferred to use identity-first language, DeThorne defaulted to person-first language for others until knowing the terminology preference of her conversation partner or audience. Within the neurodiversity movement, identity-first language was generally seen as the default way to refer to autistic individuals, so the introduction of the concept of using identify-first language to describe autistic individuals in only the most recent ASHA video on autism suggested the organization's use of terminology had either not kept up with the times or had not been updated as expectations within the community had shifted. Similarly, augmentative alternative communication (AAC) and non-speaking individuals were not mentioned in the autism related videos on YouTube until the two latest videos published in 2017 (Video 4) and 2018 (Video 5), even though AAC had been around for many years and SLPs had been highly involved with the community of AAC users. Current best practice encouraged early access to robust AAC systems for individuals who were both non-speaking or intermittently speaking and acceptance of communication in all modalities. The lack of discussion of the importance of AAC during earlier videos suggested SLPs may not have been exposed to the newer AAC practices through ASHA sponsored professional development.

A second theme in the videos was the preference for ASHA to make use of individuals with Ph.D. credentials to lead professional development opportunities. Apart from Video 4, which was narrated by an unidentified narrator, and a course participant interviewed in Video 2, all other videos were presented by women with research-based doctoral degrees. Despite only .4 percent of school-based SLPs holding Ph.D.'s, and despite 94% of school-based SLPs working with autistic students in a typical week (ASHA, 2022a., p.24), master's level, school-based individuals were not selected to share knowledge on autism, and only one openly autistic individual (who also happened to hold a Ph.D.) was included in the videos regarding the individual's lived experience.

The choice to feature only Ph.D. recipients suggested master's level SLP's should listen to the "experts on autism" as opposed to listening to the lived perspectives of autistic individuals, a belief strongly questioned by the neurodivergent community whose slogan is “nothing about us, without us” (Autistic Self Advocacy Network, 2022). While evidence-based decision making was important, listening to the priorities of the client and members of the individual’s family when selecting an intervention was a key component of the ASHA evidence-based practice framework (ASHA, 2023b), although not mentioned in many of the videos.

While ASHA offered several opportunities for professional development and parent education through a personal YouTube channel related specifically to autism, analysis of the publicly available marketing materials revealed a slow transition from behaviorally driven practices designed to develop communication and social skills toward neurodiversity-affirming practices focusing on considering autistic perspectives and viewing autism as an important part of one’s identity. In addition, since no videos on autism had been posted on the ASHA YouTube channel since 2018, more than likely SLPs (and parents) who referenced the available materials were receiving out of date information not in alignment with the current preferences of the neurodivergent community. To better understand the context of the research question, the scholar practitioner believed further research needed to focus on other sources of information available to SLPs about autism including through blogs, print materials, paid professional development, and social media and needed to seek out the perspectives of SLPs themselves in identifying how, if at all, practices had adapted to the concerns of the neurodivergent community.

Empathy Research Question 2: How, if at all, are members of the broader educational field responding to the shift toward neurodiversity affirming practices?

Secondly, the researcher decided to investigate a related research question of using a survey sent to non-SLPs enrolled in a qualitative research course at Lindenwood University in the College of Education and Human Services.

The researcher elected to use an anonymous open-ended survey to collect insights from participants. The method was chosen to collect information from as many participants as possible while minimizing the time involvement required for the researcher. The asynchronous nature of the survey allowed participants to complete the survey on the participant's own schedule and take whatever time needed to formulate the responses. In theory, the method could have resulted in a large quantity of data to analyze. However, given the limited time for recruitment of participants and the quick turnaround time to analyze the data, only four participants responded. In accordance with the expectations of Lindenwood University, the researcher created and disseminated the survey using Qualtrics.

While the qualitative research collection method of repeated journaling to track changes in views of participants over time was also considered, the researcher selected to administer a one-time, open-ended survey containing multiple questions since the participants were unlikely to receive new information on the research topic to result in any significant changes in perceptions during the duration of the study. However, journaling was considered as a potentially useful tool for future research when working with SLPs during the test phase of the design thinking process. Ongoing journaling would allow the researcher to collect data on how SLPs perceptions might have changed over time while participating in or making use of the intervention and/or tools developed through the design thinking process.

The researcher selected a total of five open-ended questions related to the single research question being investigated. The questions were worded to avoid bias and to elicit longer, more detailed responses from participants (see Table 3). See Appendix A for a rationale for inclusion of each question.

Table 3

Open-ended Questions for Educators

Questions
Have you ever interacted with an autistic individual/individuals? If so, please describe your experience.
Have you ever worked with a speech-language pathologist? If so, please describe your experience.
Describe your understanding of the term “neurodiversity.” If you are unsure, please describe what you think the term means?
What, if any, challenges do you face when working with autistic individuals in your current setting?
Has your perception of autism changed over time? If so, how?

The scholar practitioner worded the questions to allow for flexibility in the participants’ settings such as primary/secondary school, university, private practice and to minimize the use of leading or biased questions with the possibility of pressuring participants to respond in a certain way. In addition, all questions were optional, so a participant could submit the survey with skipped questions if the participant did not feel comfortable answering a question.

Once responses were collected, the researcher used a three-step model for qualitative analysis. First, the researcher highlighted key words in the transcripts. Second, the researcher grouped highlighted words into themes. Third, the researcher reexamined the themes and removed any themes unsubstantiated by the transcripts. The process resulted in four key themes on which the researcher chose to focus: SLP visibility, deficit-based language, environmental supports, and change over time.

The survey identified SLP visibility, defined as exposure to SLPs or specific mention of the role of SLPs in the support team for individuals with autism, as one theme. While all four of the participants reported some level of experience working with autistic individuals, only one reported having any experience working with an SLP before. The participant reported having multiple SLPs working for the school district but shared no specific description of an experience working with the SLPs. Another participant reported ‘they had not worked directly with an SLP but had worked with other individuals who served on teams that supported the [autistic] individuals.’ The response represented a concern for the researcher as SLP’s often viewed themselves as one of the primary experts on communication of all individuals, but if other non-SLP professionals were not interacting with SLPs, professionals may be less likely to be receiving updated information on the communication skills in neurodivergent populations.

A second theme identified by the researcher was use of deficit-based language. Deficit-based language involved viewing difficulties an individual faced as in a problem or defect within the person as opposed to a mismatch between the individual and the environment. The assumption underlying the approach was autistic individuals could be “fixed” or “cured.” Interestingly, the same participant (Participant 4) who reported employment experience with use of ABA techniques at an autism center in Question 1 made the greatest use of deficit-based language compared to other participants. Participant 4 stated ‘The main challenges I have seen include motivation to complete tasks outside of personal preferences, lack of ability in reading social cues and facial expressions, fixation on topics of interest, and misreading personal space.’ Participant 3 described autistic individuals as ‘socially awkward, for lack of a better term.’

In contrast to the deficit model theme, which placed the responsibility for challenges on the autistic individual, some participants provided examples of the theme of environmental supports. Environmental supports were intended to increase opportunities for autistic individuals to participate in the environment by making changes to the environment rather than the person. Participant 1 discussed experience in ‘assisting individuals with developmental disabilities to find meaningful and sustained work in their communities.’ Participant 3 discussed providing autistic individuals with ‘a regular work schedule being assigned the same tasks in the same order during their shifts.’ Participant 1 also discussed the challenges with implementing environmental supports stating, ‘this can be challenging because a teacher is seeking to balance the needs of all students...All teachers in every setting are working to find a balance between individual identity needs and the collective community needs and norms.’ Participant 2 discussed the importance of developing a personal toolbox to support the “individualized needs” of autistic individuals.

The final theme the researcher examined was change over time. All four participants referred to changes both in societal and personal perceptions of autism over the course of an individual’s life. Participant 4 referred to reduced frequency of diagnosis of autism spectrum disorder in the 1970s and 1980s. Participant 1 specifically discussed the importance of learning about neurodiversity and striving to support autistic individuals instead of “fix” individuals. Additionally, two participants both discussed the increase in information available to the public about autism. Participant 3 stated, ‘There seems to be more readily available information on the condition and greater representation in the media and other information outlets.’ and Participant 4 stated, ‘Since I first began working with children with autism two decades ago, there has been a flourish of research which paints a picture of typical ASD [autism spectrum disorder] characteristics.’

Overall, responses to the open-ended survey suggested the transition toward a neurodiversity perspective of autism occurred within the field of education similarly to the shift taking place in broader society. However, in the limited sample, SLPs were not identified by participants as a significant voice in the transition. The scholar practitioner concluded the broader educational community may benefit from increased outreach from neurodiversity affirming SLPs to educate non-SLPs on the importance of neurodiversity and provide support to those working directly with autistic individuals.

Empathy Question 3: What barriers, if any, are impeding the adoption of neurodiversity affirming practices among SLPs?

Since the perspectives of SLPs were central to the researcher’s overall Problem of Practice, interviews were selected as a data collection technique to allow for the key stakeholder group to share in-depth thoughts on the subject. While other procedures may have been quicker to collect and analyze, interviewing provided the flexibility to dig deeper into each response and follow up to clarify when information was unclear. To answer the research question, the researcher collected qualitative data by interviewing three SLPs with at least some familiarity with neurodiversity concepts. The scholar practitioner asked the initial question “Why, if at all, do you think a mismatch between what autistic people are requesting and what SLPs provide might be happening?” Interviewees’ responses were followed up with additional “why” questions based on the initial response to obtain deeper insight into potential drivers of the problem.

Interviews were collected and recorded over Zoom. Once the interviews concluded, the researcher transferred the audio files from the recorded Zoom meetings to Microsoft Word using the Transcribe feature available through Microsoft Office 365. The researcher then checked each transcription for errors against the audio recordings and reformatted the transcriptions to remove breaks within sentences. The researcher used a three-step model for qualitative analysis. First, the researcher highlighted key words in the transcripts. Second, the researcher grouped highlighted words into themes. Third, the researcher reexamined the themes and removed any themes unsubstantiated by the transcripts. Responses were then coded, and seven themes were ultimately identified: lack of neurodiversity affirming standards and norms, the double empathy problem, parent factors, lack of consideration of autistic perspectives, insufficient training/education of SLPs, the need for self-reflection among SLPs, and systemic, unconscious ableism.

One issue raised by interviewees was related to the lack of established developmental norms and/or learning standards aligned with the neurodiversity perspective. SLPs were often required to support provision of services by documenting failure to meet developmental norms and/or inability to attain state learning standards. Participant 1 stated SLPs were required ‘to teach lessons based on the standards that we are provided, and there’s not really any standards regarding the social aspect of what autistic people are asking [for].’ However, research documented differences in developmental sequences and academic progress among neurodivergent (ND) individuals compared to neurotypical individuals (ASHA, 2022b). Additionally, ND individuals may face challenges related to the individual’s unique neurology or sensory processing not encountered by neurotypical peers. Participant 1 reported ‘what one person who is autistic would like to be taught is different than the next person who’s autistic... I think it’s hard to produce a standard that could be universally provided because it’s a spectrum.’ The unique challenges an individual faced may not easily be tied to specific academic standards or commonly reported developmental norms but may still require support from an SLP or other support person to address. The scholar practitioner determined current practices of requiring standards-based or developmental norm-based documentation for IEP goals may sway SLPs away from providing ND-affirming support and steer SLPs towards deficit-based models of intervention.

A second theme from the interviews was issues related to what researcher Milton (2012) described as the Double Empathy Problem. The Double Empathy Problem was described as a double standard faced by ND individuals where ND individuals often were blamed for the social difficulties they faced even though, most often, the differences were viewed as a mismatch in communication styles between groups of neurotypical and ND individuals. Differences in communication styles between the two groups were perceived as disorders on the part of ND individuals if the ND individual did not “mask” as neurotypical, but there was no similar expectation for a neurotypical individual to adjust the communication style to align better with ND communication styles or preferences. Several examples of the Double Empathy Problem were provided. Participant 1 noted her neurotypical stepson did not make eye contact and grunted when the stepson needed attention, but similar behavior would be targeted for therapy if the child was autistic. Participant 2 questioned teaching children to greet people by stating “hi” all the time stating, ‘Is that something that we would anticipate for neurotypical people? No, I don’t say hi to everybody. I put my head down maybe or maybe I’ll keep walking.’

A third theme from the interviews was related to parent factors influencing current therapy practices. Participants felt influenced by parents to write goals and provide services aligning to parents' wishes. All three participants empathized with the situation parents faced and the desire to have their child be able to fit in. Participant 2 saw the importance of keeping in mind the long-term implications of traditional interventions, ‘people [children] with autism grow up to be adults too, right?’ Participant 1 stated working with parents was ‘hard’ as an SLP to ‘balance between being like an educator and knowing what’s best for the student in an education setting vs. knowing what’s best for the student... when he’s at home.’

A fourth theme was related to a lack of consideration or awareness of autistic perspectives among SLPs. Participant 1 stated ‘there’s not enough information out there and I don’t think that, you know, children and people who are autistic know that they can have a voice and say what they want without getting in trouble.’ Participant 3 discussed the challenges with getting perspectives of clients who were nonverbal or faced significant cognitive impairments, sharing a story about a young man on her caseload used an augmentative alternative communication device to ask the SLP to stop, but was unsure how to proceed with the protest stating ‘What am I going to do now like to get him? Yeah, like am I harming him? How do I know I’m harming him? He’s not telling me so... how much do you respect that, huh?’

One of the strongest supported themes related to a lack of education about neurodiversity related topics among SLPs, often stemmed from the topic not being covered during graduate school. Participant 2 stated. ‘I was in grad school like three years ago and we had nothing on this. Nothing at all.’ Participant 2, on hearing a graduate student intern had recently reported spending one day on the topic of neurodiversity in her grad program, responded ‘Got one day? One day [of instruction on neurodiversity]? When our population is heavily grounded in the neurodiverse? That’s a crime. That’s not smart.’ The SLPs reported primarily learning about neurodiversity through social media, ASHA print publications, word of mouth, and the educator’s own personal research. Participants 2 and 3 suggested graduate programs would continue to produce SLPs unfamiliar with ND-affirming practices until colleges and universities were required to include coursework on the topic for ASHA accreditation and clinical certification.

Participants 2 and 3 also referenced the importance of SLP self-reflection to bring about better alignment between current practices and the desires of the ND community. Participant 2 suspected the misalignment was continuing to remain a problem because ‘it’s an issue of that’s how it’s always been done.’ Participant 3 reported ‘reflecting more and more and shifting her focus more on the language components and messages [compared to traditional social skills]’ but stressed the importance of ‘open mindedness and being willing to listen to new information and incorporate it or continuously improve.’ Participant 3 also stated ‘it takes a lot of growth mindset for people who are willing to listen or to... try to be different with therapy and that’s hard sometimes.’ Participant 2 also acknowledged ‘it might be hard for some people to internalize and make the shift.’

The final theme from the interviews was also potentially the most difficult to change. Participants 2 and 3 both identified systemic, unconscious ableism as a key barrier to SLPs adopting neurodiversity affirming practices. Participant 2 described the situation stating,

> The tools have been built and the structures have been built for us to think in this certain way of what has always been considered normal and I think even more recently, we've been branching out into that question of, you know "normal" as we learn more about, you know, just the nature of autism.

and noted a desire among SLPs to help kids 'make it in the real world' and 'functioning independently' as driving much of the way support had been provided in the past. The participant further noted 'functioning independently and doing behaviors that are considered atypical are not exactly the same thing.' Participant 3 was more explicit about ableism, using the term frequently throughout the interview and stating, 'I think ableism is woven into everything we do at this point,' later adding 'It's in our medical system. It's in our school system. It's pervasive, those ableist thoughts.'

Through coding and analysis of SLP interviews, the researcher was able to identify several key themes equating to barriers SLPs faced in adopting neurodiversity affirming practices. The themes included a lack of neurodiversity affirming state standards and norms for use in IEP goal development, the double empathy problem, parent factors, lack of consideration of autistic perspectives, insufficient training/education of SLPs, the need for self-reflection among SLPs, and systemic, unconscious ableism. Each of the barriers presented opportunities to bring about change within the field for the benefit of neurodivergent students.

Empathy Question 4: How, if at all, do administrators within the district view neurodiversity, specifically as it relates to the role of SLPs?

A total of four administrators in the district participated in interviews to provide an administrative perspective on neurodiversity. The administrators included two area coordinators, an augmentative alternative communication facilitator, and an SLP effective practice specialist (EPS). Administrators within the school district reported inconsistent understanding about neurodiversity among staff. One interviewee reported staff not being focused on students' communication and instead focusing on academics and following a schedule. Another reported 'Adult's need training...all adults, not just teachers, but I mean paraprofessionals, cafeteria staff, any adults that work with kids need to have some kind of training and understanding about kids with autism, plain and simple' adding 'If people were educated about characteristics or just had more information, I think that they would be more comfortable.'

Three of the four interviewees correctly defined the term neurodiversity as the idea everyone learned and processed information differently. The fourth interviewee used the term neurodiversity as a synonym for autism but did not refer to other forms of neurodivergence or styles of learning. One interviewee specifically noted using the term neurodiversity more frequently lately as the interviewee learned more about the topic stating 'It was an aha moment for me!' Another commented 'Once you see it, you can't unsee it.'

The administrators reported having minimal to no conversations specifically about neurodiversity with teachers, therapists, special educators, or parents. One theme the administrators reported was parents' desire for children to have a social community and friends. Administrators did not report parents expressing concerns regarding speech-language services for pragmatic language or neurodiversity specifically.

All administrators agreed SLPs represented an essential role in the support of autistic students. Some of the words used by the administrators included ‘crucial,’ ‘the key,’ ‘a vital member of the support team,’ ‘they’re huge,’ and ‘the leads.’ Two of the administrators were not SLPs by training, and both reported seeking out SLPs for support with autistic students. One reported ‘I have learned more from SLPs than [from] anyone else.’ The results of the interviews with district administrators suggested many in the special education setting were still learning or needed to learn more about the topic of neurodiversity and SLPs were seen as the professionals to provide education to others on the topic.

Empathy Question 5: How, if at all, do employers view neurodiversity, specifically as it relates to the role of SLPs?

The researcher conducted a Zoom interview with a former autism EPS specialist from the district who previously retired and went on to assume the role of Supervisor of Pre-Employment and Supported Volunteer Experiences at a large local hospital. During the interview, the interviewee spoke not only as an employer at a hospital system but also as a non-SLP attempting to market the services of the company to outside businesses and universities. During the interview, the interviewee discussed a teletherapy company currently under development, proposed to teach “soft skills” to autistic adolescents and young adults to help better navigate the workforce. The scholar practitioner believed the interviewee’s perspective to broaden usage of a teletherapy support service offered a unique idea.

The first detail of note was the interviewee's interactions with business leaders when trying to market the company to outside companies. The interviewee made several comments about how business leaders investigating the teletherapy program developed by the interviewee asked about the interviewee's understanding of neurodiversity stating, 'They're trying to figure out how to get support for these individuals without labeling them or stigmatizing them and so it is coming in under the big DEI movement.' The interviewee also reported companies asked for diversity and inclusion training programs for neurodiversity and shared stories about a university and a cyber security/defense business asking for help with supporting neurodivergent employees to capitalize on the population's unique perspectives and ability to approach problems differently. The push by the business world and field of higher education to better support neurodivergent individuals represented a new topic not discussed by other interviewees.

The interviewee also reported observations about the role of the SLP for autistic adults in the workforce. For the adults the interviewee employed and had worked with, very few worked with SLPs. The interviewee reported 'If their parents, you know, can afford private pay, they may still be getting some social skills or some speech-language, but otherwise they don't.' Similar to comments made by the district administrators, the interviewee noted the important role of SLPs in supporting autistic individuals and stated 'they [SLPs] would be valuable if we had them.' The input from the interviewee highlighted the need for well-informed SLPs during the time when autistic individuals were in school since few had access to an SLP after graduation.

Empathy Question 6: How, if at all, do parents within special school district view neurodiversity, specifically as it relates to the role of SLPs?

The researcher interviewed two parents of autistic students in a neighboring partner school district with similar demographics. Parents of students in the researcher's partner district were not selected to avoid a potential conflict of interest. In retrospect, the researcher questioned whether avoiding parents from within the researcher's partner district was truly necessary. Ultimately, the parent perspective was deemed to not be central to the researcher's identified problem of practice as the problem of practice topic was related to the alignment between neurodiversity self-advocates and SLP's therapy practices, not ways to improve the experience of parents of neurodivergent students. Although important to consider, further investigation into the topic of improving parent interactions with SLPs was deemed outside of the scope of the researcher's problem of practice topic.

Themes noted in the parent interviews included ideas for interventions (would be used later in the ideation phase), challenges the parents had observed children facing, strengths, and definitions of neurodiversity.

Define Phase

The researcher was unable to get the stakeholder team together either in person or over video conferencing at the same time due to scheduling conflicts. As such, the team came to an agreement about the problem asynchronously. While not ideal, asynchronous collaboration did keep the process moving forward and kept the team focused on developing the "How might we?" question without much disagreement or off-topic discussion.

The researcher used the creation of a fishbone diagram, empathy map, and story map (see Appendix A) to better define the problem and develop a point of view (POV) statement. Once the scholar practitioner created the POV statement, the researcher drafted a problem statement and a “How might we?” question and opened discussion to stakeholders for input. The team agreed with minimal modifications. The final problem statement was, “SLPs do not know enough about neurodiversity to feel confident while empowering neurodivergent students to reach long-term communication goals.” The final “How might we?” question was “How might we encourage SLPs to adapt language therapy services for neurodivergent individuals to ensure neurodivergent individuals feel understood and empowered to reach long-term communication goals?”

Ideate Phase

The researcher’s next steps were meeting with stakeholders to generate ideas for how to address the “How Might We?” question. The researcher started by meeting with the SLP EPS and followed up with other stakeholders working in the CWSD. The initial meeting with the SLP EPS was held over the phone. Some barriers during the ideation phase were the complicated schedules of the stakeholders and the need for meetings to be scheduled outside of work hours and the inability to compensate participants financially for participation. As a result, ideation was conducted asynchronously using Google Jamboard to collect stakeholder responses (see Appendix B).

Stakeholders were contacted by email and given five days to provide feedback as many times as needed. All ideas in the Google Jamboard document were visible and editable to all participants, so stakeholders could see each other's ideas and use the ideas of others to assist in generating new ideas. In addition, the researcher compiled information from the Google Jamboard with feedback from a phone call with the SLP effective practice specialist prior to the ideation window opened and ideas shared during the empathy interviews.

Once all information was collected, the researcher created a concept map using the MindMup2.0 extension in Google (see Appendix B). According to Piantanida et al. (2018), “a Personal Concept Map creates a picture of one’s evolving understanding of a question or issue” (p. 140). The strengths of using the concept map included the ability to depict relationships between ideas and the ability to easily change the location of ideas or concepts. The researcher anonymized any identifiable information including names or specific locations to maintain confidentiality. Once the team ideated and generated many possible ideas, the researcher selected one idea to create a digital prototype to present for feedback to the stakeholders.

Prototype Phase

Based on the ideation process, stakeholders expressed support for a summer professional development session on neurodiversity. The approach the researcher initially proposed was to familiarize district SLPs with the research the scholar practitioner had completed on the topic of neurodiversity and orient the stakeholders to the neurodiversity movement as a growing presence in online autistic and autism parent communities. Whether or not an SLP agreed with the ideas of the neurodiversity movement, the scholar practitioner believed awareness of the existence and beliefs of the community was important to better respond to the needs of students. The proposed focus would be on what SLPs could do to support autistic students in ways aligning with the stated values of the movement. The professional development course would include why understanding the movement was important, what the movement involved, how SLPs could write goals aligning with the ideas of neurodiversity, and what neurodiversity-affirming services looked like. The course would consist of publicly available autistic created videos and materials along with opportunities for processing and self-reflection.

The researcher proposed presenting the content through an asynchronous course to allow participants time to engage in self-reflection and process information individually before discussing. Following the asynchronous portion of the course, SLPs would meet as a group for a video teleconferencing session led by the SLP EPS to wrap up the course and summarize the information discussed. The asynchronous format was similar to another professional development course related to Gestalt Language Processing offered by the CWSD.

The potential existed for some SLPs in the course to have strongly held opinions about the content being presented, either for or against. The way the course was structured in the prototype allowed the researcher to anticipate who in the group was likely to respond strongly and have discussions with disgruntled participants on a smaller scale before the strong opinions became a bigger issue during a large group discussion. Also, by making the course largely asynchronous, the researcher better controlled the messaging going out to SLPs.

The researcher created the initial prototype course shell (see Appendix C) using Google classroom outlining potential topics to be covered and initially contacted the SLP EPS for feedback. After reviewing the prototype, the SLP EPS expressed interest in the course, but shared the PD would only be eligible for ASHA Continuing Education Units (CEUs) equivalent to the synchronous portion of the course.

The researcher then consulted with SLP stakeholders over email to assess additional opinions on the need for CEUs vs. the need for scheduling flexibility during a summer course as well as overall thoughts on the course shell. The three SLPs and the AAC facilitator (who was also an SLP) responded to express interest and to ask follow-up questions about the course. One SLP requested further information on who would be included in the ND Voices component of the course and if the participants would be autistic students. Another SLP asked about if the topic of ableism would be covered in the course. The AAC facilitator reported having attended a state-level conference recently where the topic of neurodiversity was discussed in four sessions. The consensus was a preference among SLPs to have flexibility and autonomy over the timeline for course completion and would prefer less synchronous time.

While all members of the stakeholder team appeared willing and interested in proceeding with development of the full online course, when the plan was brought to the CWSD special education director for the partner district in which the course would be offered, the director did not express interest in moving forward. The special education director wanted to instead make use of resources available through ASHA Learning Pass, a paid service hosting professional development videos on a variety of topics. The CWSD purchased access to the ASHA Learning Pass for all SLPs in the partner district and would later purchase access for all SLPs across the CWSD.

The original prototyped Google classroom course could still be offered for interested participants, but the training would have to be offered completely outside of both the CWSD or partner district’s summer professional development obligations. The team was concerned about recruiting enough participants to participate in a lengthy course with no incentive. Options considered included waiting until later in the 2023-2024 school year to roll out the course, offering the course on one of the partner district's two professional development days in the Fall semester of 2023, offering the course for college credit or ASHA CEUs outside of the district, or finding a course within the district purchased ASHA Learning Pass for participants to take instead of the Google classroom course.

Waiting until later in the fall semester year was considered, but rejected because partner district's limited professional development days had the potential to be used for other district-wide training purposes. The researcher considered offering the course for college credit but was concerned participants may be dissuaded from participating due to the cost of taking the college class. In addition, offering the course for graduate credit, the course would have required inclusion of 14 hours of content, substantially more than SLPs may have had time to commit to. Becoming an ASHA CEU provider was cost prohibitive, and the CWSD, already a CEU provider, was unwilling to offer CEUs for asynchronous content.

After considering all options, the stakeholder team agreed to proceed with using a course already available on ASHA Learning Pass as the intervention for the problem of practice. The choice to use an existing course allowed individuals to earn CEUs for completing the course while minimizing the time cost and financial cost otherwise associated with participation in the study. The researcher selected "Neurodiversity-Affirming Support for Autistic Students in the Special Education Context," a course presented by Dr. Laura DeThorne at the 2022 ASHA Schools Connect online conference (ASHA, 2022c). A previous video by DeThorne on neurodiversity had been reviewed during the empathy phase of the study in a review of autism videos on ASHA's YouTube channel (ASHA, 2018). According to the course description:

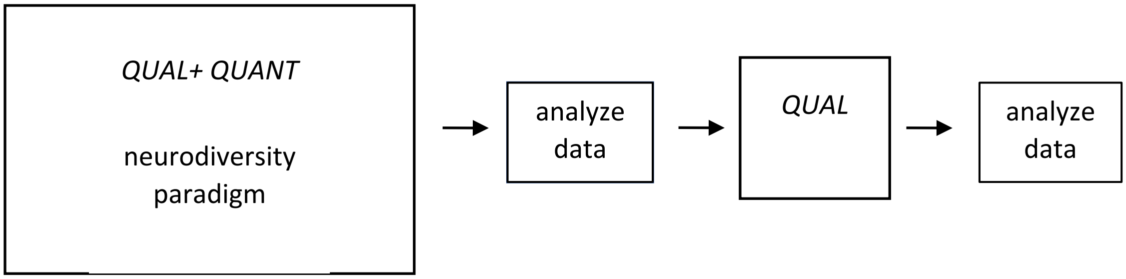
> This session explores concrete strategies for how to implement neurodiversity-affirming supports within the current special education landscape. The session reviews strategies for rewriting commonly used terminology, incorporating autistic perspectives, and changing aspects of the school environment to benefit autistic students. The session is designed for SLPs who have a basic understanding of the neurodiversity perspective and are seeking concrete strategies and next steps for implementation. (ASHA, 2022c, para. 1)

Since all study participants had district provided access to the Learning Pass service through their jobs and the course was available to all who had access to the service, no additional permission was required to refer participants to the online course and obtain their feedback on the course.

A mixed-methods approach was selected to combine the benefits of quantitative and qualitative data analysis techniques (Cresswell, 2009, p. 205). The researcher's approach to data collection and analysis (see Figure 1) combined aspects from a sequential explanatory approach, whereby quantitative data was collected initially (pre-/post- intervention surveys and open-ended survey questions), and qualitative data collection (post-intervention follow-up interviews) followed to provide additional context with aspects of a concurrent transformational approach, where quantitative and qualitative data were collected together within the context of a transformative framework (Cresswell, 2009). In alignment with the research questions and hypothesis, the researcher developed a single Qualtrics survey to allow participants to provide informed consent, respond to pre-assessment survey questions, access the ASHA Learning Pass course, respond to post-assessment questions, and provide an email to schedule a follow-up interview (see Appendix C).

Figure 1

Model of Data Collection



Test Phase & Data Analysis

Prior to implementing the testing phase, the scholar practitioner received Institutional Review Board (IRB) approval from Lindenwood University and completed an extensive research application at the researcher's place of employment who utilized a similar design thinking research process. Once the scholar practitioner received site permission the testing phase began.

Initially, access to the ASHA Learning Pass was only purchased by the CWSD for one partner district for training over the summer before the start of the 2023-2024 school year. Using email addresses provided by the SLP EPS, the researcher contacted all SLPs in the partner district with early ASHA Learning Pass access (N= 43) and invited the SLPs to participate in the study over email by sharing a recruitment letter containing a link to an anonymous Qualtrics survey with an option to self-identify and agree to participation in a later interview. Two weeks following the initial email, the researcher sent a follow-up email reminding participants of the survey. The initial summer recruitment phase lasted approximately one month to allow participants time to complete the survey and course while SLPs were on summer vacation with potentially limited access to email. The initial summer recruitment resulted in four completed surveys (including both pre- and post- assessment data) and 6 partially completed surveys.

Due to the small number of participants during the initial summer recruitment phase, the researcher in consultation with the Scholar Cohort Lead/Advisor decided to expand the pool of potential participants to include all SLPs in the County Wide School District (CWSD) (N=380). Also, the researcher decided to add an incentive to hopefully increase participation in the form of a small gift card to a large coffee chain for the first 20 participants who completed all phases of the study including the survey and follow up interview. Expansion of the recruited population and addition of the incentive required updated approval from the CWSD and IRB. The researcher obtained approval while waiting for all SLPs in the CWSD to receive access to the ASHA Learning Pass. Once access to ASHA Learning Pass was available to all SLPs in the CWSD, new recruitment emails were sent and an email reminding participants of the survey followed approximately two weeks after the first email.

Due to the high number of partially completed surveys, the researcher contacted participants who had self-identified and provided an email address for a follow-up interview but had not finished the post-assessment questionnaire to remind each to complete the course either through completing the entire survey again or through requesting a unique link to the partially completed survey. Only two participants in the group requested the unique link and returned to complete the follow-up survey. One participant emailed the researcher to state she could no longer participate in the study, but still consented for her pre-assessment survey data to be included in the study. An additional individual email containing the unique link for survey completion was sent one week later to individuals who had started but still not completed the survey encouraging the participant to complete the survey and schedule the follow-up interview. Two SLPs responded asking for additional time to complete the post-assessment surveys due to additional job requirements and outside of work responsibilities. As a result, the second recruitment phase was extended two additional weeks to allow participants time to complete the survey.

The second recruitment phase lasted about one and a half months and resulted in 14 more completed surveys (including both pre- and post-assessment data) and 19 additional partially completed surveys. By the end of the recruitment period, a total of 18 surveys had been completed.

Once the wider participant pool had access to the survey, the researcher began scheduling follow-up interviews for at least one month following completion of the post-assessment survey. A total of 5 participants responded to initial attempts to schedule interviews. A follow-up email was sent about two weeks later to participants who provided an email address to recruit additional interview participants. After the initial interviews were completed, additional participants were contacted individually over email to schedule a follow-up interview. Two more participants agreed to be interviewed. The scholar practitioner recorded each interview using Zoom and transcribed for qualitative analysis. No demographic information was retained from participants who participated in the interviews, but participants were selected using convenience sampling based on who responded first to the recruitment emails.

Data Analysis

Due to the mixed-methods nature of the dissertation in practice, data analysis involved both qualitative and quantitative data. Responses obtained from the open-ended survey questions completed by all 18 survey participants were coded for thematic analysis using Microsoft Word. Responses to the open-ended questionnaire were generally brief, consisting of only a sentence or two. The scholar practitioner reported on the themes related to each research question.

Once the one-month post-intervention interviews were completed, the scholar practitioner recognized the length and quantity of the interviews would be difficult to manage through manual coding in Word. The scholar practitioner conducted thematic analysis of post-intervention interviews using the qualitative research software program, Taguette (www.taguette.org). Transcripts were uploaded to the service, and the scholar practitioner coded the transcripts for themes. To determine saturation of the sample, the scholar practitioner utilized the approach suggested by Guest et al. (2020). The technique involved starting with a base sample (N=5) and calculating the number of unique themes/codes in the sample codebook (see Table 4). The initial base sample included 25 unique codes. Once the number of unique themes/codes had been identified, the scholar practitioner selected a “run length” of two additional consecutive interviews, consistent with the work of Coenen et al. (2012). The additional interviews were coded, and the codebook was exported again. No new codes were added during the additional two interviews.

According to Guest et al. (2020), saturation was considered reached if the number of new codes identified in the run phase divided by the number of codes identified in the base sample was found to be less than 5%, with 0% representing a more conservative measure of saturation. In the case of the post-intervention interviews, the saturation ratio was calculated at 0% after seven interviews, so no further interviews were conducted.

Table 4

Identified Codes to Calculate Saturation Proportion

Base sample (*n*=5)		Base sample plus run length (*n*+2)	
Tag	# of highlights	Tag	# of highlights
Fear/anxiety	3	Fear/anxiety	4
Reexamining expectations	11	Reexamining expectations	15
Goal writing	5	Goal writing	6
Assessment/eligibility	9	Assessment/eligibility	9
Terminology change	9	Terminology change	10
Medical model	1	Medical model	1
Student involvement	8	Student involvement	10
Strengths based	3	Strengths based	5
Specific strategy/technique	10	Specific strategy/technique	10
Parent reaction	14	Parent reaction	14
Communication flexibility	5	Communication flexibility	6
Other professionals	12	Other professionals	14
Student autonomy	2	Student autonomy	2
More info needed	15	More info needed	18
Support for discussing with others	15	Support for discussing with others	18
Shift in perspective	14	Shift in perspective	22
No new strategy/technique	3	No new strategy/ technique	5
Broader than just AU	3	Broader than just AU	3
Post-secondary transition	2	Post-secondary transition	2
Non-AU ND	5	Non-AU ND	5
Changing role of the SLP	2	Changing role of the SLP	3
Other training/input	2	Other training/input	3
Eligibility criteria/Missouri Learning Standards	1	Eligibility criteria/Missouri Learning Standards	5
Need for boundaries	2	Need for boundaries	2
Total unique codes	25		25

Quantitative data analysis also consisted of several different components. Descriptive statistics were used to report participants' demographic characteristics as well as mean scores and standard deviations for responses on Likert surveys. The researcher also used descriptive statistics to determine if underlying assumptions were met to conduct parametric techniques by examining the differences between pre- and post-assessment scores for each survey question. Shapiro-Wilk scores were calculated to assess normality. While Pallant (2013) stated “most of the [parametric] approaches are fairly ‘robust;’ that is, they will tolerate minor violations of assumptions, particularly if you have a good sample size” (p. 116), significant departures from normality required use of non-parametric methods. However, Gignac (2019) and Erceg-Hurn and Mirosevich (2008) argued parametric approaches such as the paired samples t-test with bootstrapping were provided more accurate measures of statistical significance than non-parametric methods, even when underlying assumptions regarding normality were not met. Depending on the characteristics of the sampled data, pre-/post- survey results were compared for each question using either a paired-samples *t*-test or both a Wilcoxon Signed Rank Test and a bootstrapped paired samples *t*-test. As the researcher had insufficient participants in the study to complete factor analysis, items on each scale were run item-by-item.

Results

The researcher calculated Cronbach’s alpha as a measure of reliability. The 5-point Likert scale portion of the pre-/post assessment focusing on familiarity with neurodiversity related vocabulary and concepts consisted of seven items (pretest α = .929; posttest α =.946), and the 7-point Likert scale portion focusing on confidence in performing various neurodiversity affirming tasks contained 10 items (pre-test α = .970

and posttest α = .942). The calculated measures of reliability exceed the preferred Cronbach's alpha value of .80 or higher recommended by Pallant (2013, p. 104), indicated adequate reliability. A review of changes to Cronbach's alpha if individual items were to be deleted did not result in a need to remove any items from the assessment.

Participants self-reported the number of years of experience working as a school based SLP, years of experience working with autistic students, and the length of time they had known about the concept of neurodiversity (see Table 5). On the first two questions, participants relatively evenly represented a broad range of experience in working in schools and with autistic individuals. In response to the third question, most participants (71%) reported knowing about the concept of neurodiversity for less than 5 years. The finding suggested even experienced SLPs and those who have worked with autistic students for many years were relatively new to learning about the concept of neurodiversity. Although the concept of neurodiversity had existed since the 1990s (Craft, n.d.; Resnick, 2021), only one participant reported having been familiar with the concept for over 15 years.

Table 5

Years of Experience of Participants (n=18)

	How many years have you worked as a school based SLP? *n (%)*	How many years have you worked with autistic students/students with autism? *n* (%)	How many years have you known about the concept of neurodiversity? *n* (%)
1-5 years	3 (17%)	4 (22%)	13 (72%)
6-10 years	6 (33%)	6 (33%)	2 (11%)
11-15 years	3 (17%)	3 (17%)	2 (11%)
15+ years	6 (33%)	5 (28%)	1 (6%)

RQ1: How do the SLPs in a midwestern school district perceive an asynchronous online professional development course on neurodiversity?

To investigate the research question "How do the SLPs in a midwestern school district perceive an asynchronous online professional development course on neurodiversity?" the researcher used thematic analysis to identify trends in responses provided to the open-ended question, "How would you describe the learning experience?" The identified themes involved interest/engagement, depth of knowledge, language use, and course structure.

With regard to the theme of interest/engagement, all participants reported favorable impressions of the course. Two participants described the course as 'eye-opening,' while another described it as 'an enjoyable course' and 'interesting' while adding the course held the participant's interest for the entire course. While one possible interpretation of the feedback provided was the course was unanimously well-received, another possibility was participants who did not find the course engaging simply did not complete the course, and therefore did not complete the post-assessment open-ended questions.

A second theme of the responses was discussion of the depth of knowledge covered in the course. One participant described the course as a 'great introduction for someone who is unfamiliar with neurodiversity' and expressed interest in 'more in-depth information about neurodiversity, especially how to address neurodiversity with parents and colleagues.' Another requested more information about what "dynamic assessment" (i.e. a scaffolded assessment process that incorporated differences of culturally and linguistically diverse individuals; ASHA, 2023e) would look like with neurodivergent populations. Others praised the specifics provided in the course including ‘great examples,’ ‘valid resources to further learning,’ and excerpts from the presentation appropriate for sharing with colleagues and parents.

A third theme involved the recognition of the changes in language and terminology associated with a neurodiversity approach to autism. While participants appreciated the information on neurodiversity-affirming language discussed during the course including ‘ways to write goals, objectives, and assessments,’ and practice with ‘neurodiverse [sic] terminology,’ participants also were interested in receiving more information. Perhaps the highest praise for the course was where a participant stated the presenter’s ‘language describing neurodiversity is what I want to ascribe to.’

In terms of the structure of the course, two participants reported enjoying the self-paced nature of the course. Participants also appreciated having access to the presenter’s PowerPoint slides to follow along with and/or take notes on. Consideration of these factors may be beneficial in preparing for any future professional development opportunities on this topic either created by outside presenters or developed by the CWSD.

Interviews conducted at least one-month post-intervention indicated a consistent mindset shift among SLPs who completed the training. While the participants often struggled to remember specific details from the class, especially for participants who had been recruited during the first recruitment wave over the summer, all participants spoke positively about the course and the role the information played in helping the participant to adopt neurodiversity affirming practices, including lines such as ‘it really had me thinking more about the students who I see that have AU,’ ‘it has changed my perspective in that I really notice what language I have been using in IEPs and reports,' and 'the class...has prompted me to reflect more on what it is I'm doing and actually reflect on our profession.' In summary, the course was well perceived by SLPs who completed participation the study.

Table 6

Descriptive Statistics for Pre- and Post-assessment Questions

Question	Pre- *M (SD)*	Post- *M (SD)*
How familiar are you with the following terms:		
Neurodiversity	3.5 (1.0)	4.1 (.7)
Neurodiversity-affirming practices	2.9 (1.1)	3.8 (.8)
Neurodivergent	3.3 (1.0)	3.8 (.8)
Neurodiversity movement	2.6 (1.2)	3.7 (.8)
Neurotype	2.3 (1.2)	3.3 (.8)
Neurotypical	3.6 (.9)	3.9 (.7)
Ableism	3.0 (1.2)	3.4 (1.0)
How important do you believe it is to use neurodiversity-affirming practices?	4.4 (.6)	4.7 (.5)
I feel confident in my ability to...		
...discuss the concept of neurodiversity with parents.	4.3 (1.4)	5.5 (1.0)
...discuss the concept of neurodiversity with neurodivergent students.	4.4 (1.5)	5.5 (1.2)
...discuss the concept of neurodiversity with neurotypical students.	4.4 (1.1)	5.6 (1.0)
...discuss the concept of neurodiversity with classroom teachers.	4.5 (1.3)	5.5 (1.1)
... plan therapy in a way that is neurodiversity-affirming.	4.2 (1.6)	5.2 (1.1)
...locate resources related to neurodiversity.	4.2 (1.6)	5.8 (.8)
...write goals that are neurodiversity-affirming	3.8 (1.4)	5.2 (1.0)
...use language that is neurodiversity-affirming	4.1 (1.5)	5.7 (1.0)
... conduct assessments in ways that align with neurodiversity principles	3.6 (1.4)	5.1 (1.1)
... choose what to work on with neurodivergent students	3.9 (1.4)	5.0 (1.2)

Note. Familiarity questions used a 5-point Likert scale. (1= not familiar at all; 5 = extremely familiar).
Importance was assessed using a 5-point scale (1=not at all important; 5= extremely important).
Confidence with neurodiversity-affirming topics was assessed using a 7-point scale. (1 = strongly disagree; 7 = strongly agree).

RQ2: What further support or information, if any, do SLPs perceive necessary related to neurodiversity following the intervention?

Descriptive statistics from the post-assessment survey (see Table 6) indicated SLPs who completed the course felt comparatively less familiar with the terms ‘neurotype’ and ‘ableism’ and felt least confident with their abilities to ‘write goals that are neurodiversity affirming,’ ‘conduct assessments in ways that are neurodiversity affirming,’ and ‘choose what to work on in with neurodiversity affirming students.

Analysis of open-ended survey questions and post-intervention interviews related to the second research question yielded three main themes: navigating difficult conversations, need for additional training, and reassessing expectations and practices.

Navigating difficult conversations

Under the theme of navigating difficult conversations, participants expressed a need for support with discussing neurodiversity with parents who may be unfamiliar with the concept. One participant stated, ‘I need more support in getting parents on board... parents continue to push for services because they want their child to be more social and make friends. What does that conversation look like?’ Another wondered ‘How should SLP’s introduce neurodiversity to parents who often unknowingly adhere to ableist perspectives.’ Support for SLPs in having difficult conversations and sharing resources about neurodiversity with parents may increase SLPs willingness to engage in such conversations.

In addition to parents, participants expressed a need for support in interacting with other professionals including applied behavior analysts, paraeducators, and other SLPs. One participant stated a preference for messaging on the topic of neurodiversity being communicated by the CWSD instead of by individual SLPs stating, ‘Educating ABA and paraeducators and students can't all fall on SLPs. I think it would be great if CWSD did more to lead the way on this.’ Another wondered, ‘How do you encourage SLPs to engage in reflection and self-awareness?’ Since students interact with many professionals throughout the school day, providing support to other adults who work with neurodivergent students would decrease the load on SLPs and increase consistency in the lives of neurodivergent students.

In the post-intervention interviews, two participants reiterated a need for administrative support and ‘top-cover’ as a barrier to implementing practices in individual settings. One participant stated, ‘I think having admin trained...would be helpful to kind of like support if you’re doing this stuff [ND affirming practices] in therapy and then someone comes to see you and it looks like you’re just playing or you’re just allowing certain things to happen...’ Another stated ‘I would love admin support...like a top-down approach of ...it’s ok if we are using these practices, like we don’t have to align them with these [state learning] standards, we need to focus more on what’s better for the kids.’ By ensuring awareness and support from administrators, SLPs reported feeling more comfortable stepping outside of their comfort zones of more traditional looking therapy approaches and exploring neurodiversity affirming practices.

Additional training

The second theme reflected a need for additional training. While participants reported feeling interested in the content contained in the Learning Pass course, participants also wanted opportunities for more in-depth learning. One participant stated, ‘I feel like this class was a great overview or appetizer but would love to have a PD that does a deeper dive into goal writing and describing behavior, etc. for an IEP.' Another specified, 'I feel like I need more training overall in the area of identity first language and how to share that information with others.' A third expressed interest in additional training on goal writing stating 'I would also love more support with goal writing so that my goals are supportive and helpful rather than damaging or painful for my students.'

The theme of needing additional training was reiterated in the follow-up interviews conducted at least one month following completion of the training. Participants cited an interest and need for additional training, both for themselves and for the school communities (general education and special education teachers and staff) and reported not feeling competent enough with their own understanding of neurodiversity to confidently present the information to co-workers, stating 'I haven't really had the opportunity to introduce that too much with staff and I don't quite know how to approach or bridge it all with some of those ableist views that parents, staff, and even I sometimes still have' adding 'that's the big ball of mess I'm trying to work with.' Several participants mentioned wanting to engage with neurodiversity concepts on a more in-depth level.

Reassessing expectations

The need to reassess expectations and practices was a third theme in responses. One aspect discussed was related to expectations for neurodivergent students and the right to refuse to complete school assignments. In the one-month post intervention follow up, a participant stressed the continued need for boundaries within a ND affirming framework stating, 'We don't live in a world where you just don't get to do what you need to do, so I don't think we should set kids up for that kind of expectation.'

Another participant discussed the struggle to respect a student's perspective of wanting to discontinue therapy when parents had a different vision for the child than the child did. The participant posed the question 'should therapy be forced?' Striking the appropriate balance between student autonomy and role of teachers and therapists to help students develop pro-social behaviors was a commonly reported challenge.

Several participants referred to the challenges presented by externally imposed expectations related to eligibility and reliance on learning standards to guide IEPs. Another SLP mentioned concerns the Autism Diagnostic Observation Schedule – Second Edition (ADOS-2), a commonly used autism assessment in the district, and the assessment's alignment with neurodiversity affirming principles. The participant expressed a desire to further research the topic but was unsure of where to go to find information.

While participants were generally enthusiastic about the content, an underlying sense of fear or concern about the future of the field and, more specifically, the future of the participant's job role was of particular interest due to the potential for fear or anxiety to act as a barrier to change. For example, one participant noted, 'I struggle with kind of the future, of how it all looks and how my job even will fit into that.' Another participant stated, 'I question a lot what I'm doing,' and a third stated 'I just saw the future of [CWSD] and the way that we're diagnosing and treating just being completely flipped.' Consideration of the feelings of fear associated with the massive transformation of the field of speech-language pathology was required to bring about change in current practices.

RQ3: What neurodiversity-affirming practices, if any, do SLPs adopt in therapy sessions *after completion of the intervention?*

While several participants reported being in the early stages of changing individual practices and even commented the participants had not changed the therapy sessions yet, all SLPs interviewed were able to state at least one neurodiversity-affirming practice the participant implemented at least one-month post-intervention. ND affirming practices included a shift in the language used to discuss autism in reports, IEPs, discussions with parents, or discussions with students; shifts in goal writing to incorporate goals with greater meaning to the student; use of a strengths-based approach to assessment and therapy; greater effort to take the perspective of the student; and modeling use of neurodiversity perspectives for staff.

The overarching theme of the changes included a focus on the students' priorities, not on opinions from outside of the student including the SLP's own opinions. One participant illustrated the theme by stating, 'Instead of having like preconceived notions about them and like how they need to be, I feel like I … meet them at their level and, like, teach them what specifically would work for them and their needs versus like what society says.' Another stated, 'my goal is not the most important thing right now. I'd rather you be able to communicate to me right now, which is ultimately the end goal.' A third commented about the training stating, 'It has given me some insight into how I could again, maybe modify or work to include more of a student's perspective when I'm evaluating them.' The statements reflected true understanding of the goals of the neurodiversity movement, 'nothing about us, without us' and suggested the training was successful in aligning the views of SLP with the views of the neurodiversity movement.

Null Hypothesis: There is no increase between SLPs' pre-/post-test rating scores after implementation of the intervention.

To compare pre-/post-test rating scores following completion of the intervention, the researcher began by examining the normality of the differences between pre- and post-assessment scores in the three subsections of the survey: confidence, familiarity, and importance to determine whether parametric or non-parametric statistical analyses were most appropriate.

Confidence

The differences in scores on the questions regarding participants' confidence appeared to approximate normal distributions on histograms with no outliers noted on box-and-whisker plots. Shapiro-Wilk test of normality indicated six of the ten confidence questions had significance values >.05 suggesting a normal distribution. Departures from normality were noted on questions C1 (sig. = .005), C3 (sig. = .011), C5 (sig. = .047), and C9 (sig. = .042). However, the researcher decided to use a parametric test, the paired-samples *t*-test, to look for differences between the scores on the confidence scale, a decision supported by Pallant (2013) due to the robust nature of the paired *t*-test at tolerating moderate departures from normality. On the questions related to confidence, one participant skipped question 9. The researcher decided to exclude cases pairwise and to remove the difference calculation for the participant for question 9 from statistical analyses.

The paired *t*-test identified a statistically significant (*p*.<.05) increase in scores from the pre-assessment to the post-assessment scores on all confidence questions. The effect size ranged from medium to large (see Table 7).

Table 7

Differences Between Pre-/Post- Scores for Confidence Questions

Question	*M*	*SD*	95% CI of difference		*t*	*df*	Sig. (1-sided)	Effect Size	
			Lower	Upper				*d*	Description
C1	1.17	1.04	0.65	1.69	4.745	17	<.001***	1.118	large
C2	1.11	1.07	0.58	1.65	4.370	17	<.001***	1.030	large
C3	1.11	.963	0.63	1.59	4.893	17	<.001***	1.153	large
C4	1.00	1.28	0.36	1.64	3.306	17	.002**	.779	medium
C5	1.00	1.45	0.28	1.72	2.915	17	.005**	.687	medium
C6	1.61	1.24	0.99	2.23	5.489	17	<.001***	1.296	large
C7	1.39	1.19	0.80	1.98	4.931	17	<.001***	1.162	large
C8	1.56	1.50	0.81	2.30	4.389	17	<.001***	1.034	large
C9	1.41	1.27	0.76	2.08	5.556	16	<.001***	1.105	large
C10	1.11	1.32	0.45	1.77	3.562	17	.001**	.840	large

Note: *$p < .05$. **$p < .01$. ***$p < .001$

Familiarity

Responses to questions regarding familiarity with neurodiversity terminology and concepts were assessed using a similar process to the questions related to confidence. However, unlike with the confidence items, the differences in the scores between pre- and post- surveys on the familiarity items did not approximate a normal distribution. A significance of above >.05 on the Shapiro-Wilk test of normality would indicate a normal distribution (Pallant, 2013). With values ranging between <.001 and .018, no question on the familiarity scale has a significance of >.05 indicating the distributions were not normally distributed.

Initially, analysis of all familiarity questions was completed using a non-parametric test, the Wilcoxon Signed Rank Test. The Wilcoxon Signed Rank Test revealed a statistically significant increase in familiarity with neurodiversity terminology and concepts following participation in the one-hour course for all questions (see Table 8). Effect size ranged from medium to large.

Table 8

Results of Wilcoxon Signed Rank Test for Familiarity Questions

Question	*p*	*R*	Effect size
F1	0.008**	0.45	medium
F2	<.001***	0.59	large
F3	0.007**	0.45	medium
F4	0.001**	0.54	large
F5	0.002**	0.52	large
F6	0.035*	0.35	medium
F7	0.008**	0.44	medium

Note: $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$

Although Gignac (2019) stated the *t*-test was sufficiently robust, even with “minor, moderate, and even fairly severe departures from normality, in most cases” (p. C6.20) given that the skew was less than |2.0|, kurtosis was less than |9.0|, the sample size was greater than seven, and the skew was in the same direction for each group in the pair (p. C6.20-21), Erceg-Hurn and Mirosevich (2008) noted the argument of robustness was often incorrectly overapplied. However, to allay concerns of non-normal distribution, both Gignac (2019) and Erceg-Hurn and Mirosevich (2008) proposed running the paired samples *t*-test with bootstrapping, a data transformation Gignac defined as “an especially useful statistical estimation procedure for situations where the data are non-normally distributed” (p. C6.51). Both Gignac (2019) and Erceg-Hurn and Mirosevich (2008) argued completing paired samples *t*- tests with bootstrapping did no harm to normally distributed data and allowed for non-normally distributed data to be analyzed using stronger parametric tests more accurately measuring the null hypothesis. The results of the bootstrapped paired samples *t*-test for familiarity questions (as well as the importance question) were noted in Table 9. Across the three tests, *p*-values were relatively consistent, strengthening the case of statistical significance for the questions.

Table 9

Comparison of Wilcoxon Signed Rank Test and Paired Samples t-Tests for Familiarity and Importance Questions

Item	Wilcoxon Signed Rank Test (one-tailed)	Paired samples *t*-test (one-tailed)	
		Traditional	Bootstrapped
F1 (pre-post)	0.004**	0.002**	.001**
F2 (pre-post)	<.001***	<.001***	<.001***
F3 (pre-post)	0.004**	0.002**	.007**
F4 (pre-post)	<.001***	<.001***	<.001***
F5 (pre-post)	0.001**	<.001***	<.001***
F6 (pre-post)	0.018*	0.015*	.022*
F7 (pre-post)	0.004**	0.002**	.008**
I (pre-post)	0.007**	0.005**	0.015*

Note: *p < .05. **p < .01. ***p < .001

Importance

Similar to the familiarity questions, the question on SLP perspectives of the importance of using neurodiversity-affirming practices did not satisfy the underlying assumption of a normal distribution of differences in scores. A value of $p > .05$ on the Shapiro-Wilk test of normality was required to assume the population from which the sample was obtained to be normally distributed. The calculated value of $p < .001$ represented a significant departure from normality. Visual assessment of the histogram for difference scores on the question and the box-and-whisker plot confirmed the need for use of a non-parametric test.

A Wilcoxon Signed Rank Test also revealed a statistically significant increase in SLP perceptions of the importance of using neurodiversity affirming practices following intervention implementation, z = -2.449, p = .014 with a medium effect size, r = .408. Similar to the process used with the familiarity question data, the statistically significant increase was confirmed by a paired samples *t*-test with bootstrapping (see Table 9). As a result, the researcher rejected the null hypothesis.

Summary

The responses of the SLPs who participated in the study indicated a clear openness to reconsidering the role of SLPs in the lives of the neurodivergent students and adapting therapy practices to incorporate the lived experiences of autistic students. The one-hour, asynchronous online training appeared to engage participants and encourage each to reexamine their thinking and practices, but did not result in participants feeling supported enough to confidently share the information with parents and other professionals and left participants with remaining questions about how to implement a neurodiversity-affirming approach. Statistically significant increases were noted on self-reported familiarity with neurodiversity terms and concepts, views of the importance of implementing neurodiversity-affirming practices, and confidence at performing various professional duties in alignment with a neurodiversity perspective. Despite empathy interviews with district administrators suggesting SLPs were viewed as the experts on autism, SLPs who completed the training reported needing more training before the participants could bring the newly acquired knowledge of neurodiversity to parents and colleagues. The feeling lingered for at least one month following the training.

Chapter Four: Critical Analysis – Integration into Practice

Critical Analysis

As stated earlier, the scholar-practitioner employed a design thinking approach to identify and attempt to address the research questions. The design thinking approach provided several advantages including accessibility to a wide audience, a focus on end users, and the potential to develop outside of box solutions to “wicked problems” (Gallagher & Thordarson, 2020; Liedtka, 2018). While a review of the literature provided much insight into the neurodiversity movement and the preferences of the autistic community related to the services being provided by SLPs, no specific existing research was located regarding programs to support SLPs in the transition toward neurodiversity affirming practices.

Through use of the design thinking process, the design team was able to identify a resource purchased by the district suitable for addressing the need for professional development around neurodiversity. The resource, a one-hour asynchronous online course offered through ASHA’s Learning Pass service, aligned with several of the needs of SLPs in the researched district. The training required little time commitment, provided SLPs with professional development hours needed for maintaining professional certification or fulfilling summer professional development requirements, and covered many aspects of the topic of neurodiversity. The one-hour course also aligned with the priorities of district-level administrators who were interested in preserving limited professional development days and encouraging SLPs to access the ASHA Learning Pass, a new resource purchased by the researched district, and aligned with the priorities of autistic individuals and parents of autistic individuals who expressed interest in having therapy providers better understand the autistic perspectives.

While the design thinking process proved to be a successful tool for discerning a practical intervention aligned with the goals of multiple stakeholders, the process did not result in a particularly “outside of the box” solution to the identified need. The most likely reason was the need for final approval to move forward with the testing phase from a district-level administrator who was not a part of the design team and therefore had little stake in the initial proposed prototype of a more interactive online course developed by the researcher centered on material created by autistic individuals. The decision to go with a more mainstream intervention was always a possibility and use of a low-fidelity prototype, a course outline instead of a fully developed course, allowed for quick pivoting to suit the needs of the situation.

Both qualitative and quantitative findings of the study supported use of the existing online course to bring about change in the perspectives of practicing SLPs who completed the course. For an intervention requiring no out-of-pocket expenses from district SLPs and minimal time commitment, the intervention ultimately appeared to work. However, like many of the participants who expressed a need for more information following completion of the training, the scholar-practitioner was left with many questions left to answer.

One question focused on the nature of the intervention. Previous researchers identified several key components of high-quality professional development including content focus, active learning, collaboration, use of modeling, coaching or expert support, opportunities for feedback and reflection, sustained duration, and alignment with school goals or other professional learning efforts (Darling-Hammond et al., 2017; Scherff, 2018). Hill and Papay (2022) noted similar components to professional learning and encouraged a focus on "problems of practice" in the educator's context and involvement of social accountability in the form of follow up discussions with other professionals or coaches to help sustain change. While the design team selected the asynchronous, one-hour online course through ASHA Learning Pass as the intervention to bring into the test phase aligned with the researched district's focus, the selected intervention method did not align with the key components of quality professional development by Darling-Hammond et al. (2017). Additionally, while both quantitative and qualitative self-report data supported rejection of the null hypothesis and sustained interest in the topic and changes in perception and practices among those participants who participated in follow-up interviews, the course was more representative of a "sit and get" professional learning opportunity, an approach previous research had shown "may not sustain or penetrate into the system" (Nishimura, 2014, p. 21).

A second question centered on the self-report nature of the data collected (Lavarkas, 2008). Participants may have rated improvement on post-intervention survey questions as higher or over-reported how positively the training was received in a desire to please the researcher. While the possibility of the occurrence was reduced due to the participants having the ability to complete the pre-/post- survey anonymously, the option to provide an email to be contacted for a follow-up interview may have led participants to positively inflate the self-reports intentionally or unintentionally. With more time for research, additional observational data could be used to document changes in practices independent of self-report. Additionally, feedback from other stakeholders including parents, teachers, and perhaps most importantly, autistic individuals could be used to better understand the changes in practices occurring following increased understanding of neurodiversity topics by SLPs.

Similarly, Lavarkas (2008) stated, and Unger et al. (2021) reiterated how research involving self-selection of participants had the potential to result in biased results with Lavarkas (2008), “The problem with self-selected samples comes when a respondent chooses to do a survey for reasons that are systematically related to the behaviors or attributes under study” (p. 809). Self-selection not only may have resulted in participants who already were predisposed to accepting neurodiversity concepts or who had already been exposed to the ideas and responded positively to the information; self-selection may have also explained the relatively high number of participants who completed the pre-assessment but either did not complete the course or did not complete the post-assessment following completion of the course. As such, the data collected may not generalize to SLPs in the district who may be uninterested in or opposed to learning more about neurodiversity concepts.

A final question centered on the experimental design. While the findings indicated statistically significant increases on all Likert scale measures and self-reported changes in beliefs and practices among SLPs, the cause of the changes could not be attributed directly to the training. Confounding factors such as additional outside training, conversations with other professionals, or exposure to neurodiversity materials through social media could have occurred between completion of the training and completion of the post-assessment survey or during the month-long period before the follow-up interview was scheduled. Causality could only be determined through use of a randomized controlled trial sampling, beyond the purposive sample employed by the researcher.

Integration into Practice

While the design-based dissertation in practice successfully identified one possible tool to support school-based SLPs in the county-wide special education district (CWSD) in the transition toward neurodiversity affirming practices, additional cycles through the design thinking process would likely lead to refinements in the intervention. Encouragingly, the data indicated the intervention helped SLPs to reflect on and identify a need for change in current practices, an essential early step in organizational change. With a greater recognition of a need for change, the scholar-practitioner was optimistic a leader could capitalize on momentum to bring about the changes desired by many members of the autistic community by not just educating SLPs, but by listening, supporting, and guiding SLPs through the change process. Transformational leadership, consisting of four main components, idealized influence, inspirational leadership, intellectual stimulation, and individualized consideration, provided a valuable framework for understanding how a leader could provide support to SLPs making the transition to neurodiversity affirming practices and help to bring about lasting change.

A transformational leader was described as a person who “envisions a desirable future, articulates how it can be reached, sets an example to be followed, sets high standards for performance, and shows determination and confidence” (Bass, 1999, p. 11) through the first two components, idealized influence and inspirational leadership. Such a leader could inspire followers in the district to become part of the neurodiversity movement and help SLPs embrace and adopt group goals or internalize district priorities

(Steinmann et al., 2018). Transformational leaders also encouraged others to focus not on immediate self-interests but on the good of the team, or in the case of SLPs, the good of the students on the SLP's caseload. By leading others through modeling and envisioning a shared future, SLPs may be more willing to step outside of personal comfort zones in pursuit of a more equitable and just society for the neurodivergent students SLP's work with.

Another aspect of transformational leadership, individualized consideration, involved leaders paying close attention to the needs, fears, and hopes of followers as well as coaching, mentoring, or facilitating growth in followers (Kahn et al., 2020; Steinmann et al., 2018). Individualized consideration was essential for supporting SLPs of various backgrounds in the diverse contexts found across the large CWSD. For example, the needs of a high school SLP in an affluent partner district could be wildly different from the needs of an SLP diagnostician working primarily with elementary school students in a less affluent partner district. By identifying and empathizing with the unique needs in each context, a transformational leader could bring the best out of all involved.

A final aspect of transformational leadership, intellectual stimulation, involved fostering innovation, creativity, and experimentation among followers (Kahn et al., 2020; Steinmann et al., 2018). By encouraging SLPs to problem solve, collaborate, and think differently about practices, a leader could help SLPs navigate the complexities of the sometimes-challenging topic of neurodiversity and to incorporate autistic perspectives into service delivery. The various components of transformational leadership aligned well with the design thinking process's emphasis on truly understanding and empathizing with others before attempting to solve a problem, providing insight into opportunities for future cycles through the design process and mirroring the neurodiversity affirming therapy approaches requested by the autistic community.

While the results of the study indicated completion of a one-hour, asynchronous professional development course covering neurodiversity concepts resulted in increased scores on self-reported measures of confidence, importance, and familiarity with neurodiversity topics as well as self-reported changes in attitudes and therapy practices one month after completion of the training, the scholar-practitioner saw potential opportunities for further encouraging professional growth in several ways. One possible means for encouraging growth of the message of neurodiversity was to widen the population receiving the information. Including the one-hour training in mandatory annual trainings or as a component of SLPs' required professional growth plans could increase participation in the course. A similar pre-/post- survey and follow-up interview procedure could be used to review how the training was received by SLPs who did not self-select to participate or even by SLPs who may have been resistant to the idea of neurodiversity. Making the training mandatory would also yield less biased data since participants would not be self-selecting whether to complete the online course. A scale such as the Autism Attitude Acceptance Scale (AAAS) developed by Kim (2020) could be used as a screening tool by a school district to identify SLPs who may exhibit particularly low autism acceptance. Since SLPs, in the researched district, were identified by building and district-level administrators as subject matter experts on autism and communication during empathy interviews, a train-the-trainer model could be used to disseminate information to both special education and general education teachers and staff (Yarber et al., 2015), or similar brief trainings could be offered through partner districts or the CWSD.

A second possible way to encourage use of neurodiversity affirming practices across the district was to leverage best practices in professional development to design a more sustained, interactive, self-reflective, and collaborative professional development course (Darling-Hammond et al., 2017; Hill & Papay, 2022; Scherff, 2018). SLPs who completed the course expressed interest in a more in-depth study of the topic and more opportunities for collaborative problem solving. Further iterations to the course informed by the feedback provided by participants in the one-hour course could result in a development of a more powerful tool to improve the skills of a broad swath of SLPs in the district or to allow those SLPs with interest to delve more deeply into the topic.

A third way of potentially increasing application of neurodiversity affirming practices among SLPs would be to create the new role of neurodiversity coaches or facilitators within a school district. The role of a facilitator was proposed to serve as an expert while gradually fading support as professionals became more competent in knowledge and practice in each area (Vrieling et al., 2019). A facilitator could serve as a point person for leading change within the district, engaging in such key leadership tasks as “sense making, visioning, sense giving, aligning, enabling, supporting, and maintaining momentum and sustaining the change” outlined by Hayes (2022, p. 244). Vrieling et al.’s (2019) research provided guidance for facilitators to create opportunities for teachers who felt isolated from each other geographically and within the discipline. Such activities included creating opportunities for professionals to share experiences and insights with peers and using new knowledge to solve real world problems. By identifying change agents already working within a school district who were passionate about neurodiversity with connections within a community to serve as neurodiversity facilitators, districts could capitalize on preexisting relationships and shared understanding of context to empower SLPs through a collaborative rather than prescriptive approach to intervention (Hayes, 2022).

School districts outside of the CWSD would need to weigh the cost of purchasing ASHA Learning Pass access for all SLPs against the benefits of completing the training and may find more specific existing training of greater benefit or lower cost. Alternatively, school districts may be able to develop professional development opportunities on the topic of neurodiversity in house. Use of the pre-/post- survey included in the study would allow for direct comparison across interventions and districts.

While the scholar-practitioner's suggestions may have benefits for future researchers or stakeholders interested in implementing similar supports within a district, use of a design-based approach had the potential to yield innovative, new tools or approaches not identified during the dissertation in practice. The use of a design-based process in other districts would allow for interventions tailored to the unique context of the district.

Conclusion

The development of a process to support SLPs moving from a behavioral, deficit-based model of disability toward neurodiversity-affirming practices represented a gap in the current research literature warranting further investigation. Using a design-based method, the researcher identified one possible intervention which resulted in relatively quick and efficient gains in confidence, importance, and familiarity with neurodiversity concepts and self-reported changes in practices for SLPs. Given the frequency with which SLPs interacted with neurodivergent students and the possible harm and trauma to neurodivergent students by non-neurodiversity affirming approaches, the intervention represented a positive first step in developing the skills of practicing SLPs. Additional opportunities for further research into the topic of supporting both SLPs and autistic individuals existed moving forward and a design thinking-based approach was recommended to incorporate as many stakeholders into the change process as possible, truly aligning the CWSD with the motto of the autistic-led social justice group, the Autistic Self Advocacy Network (ASAN, 2022), “Nothing about us, without us” (para. 1).

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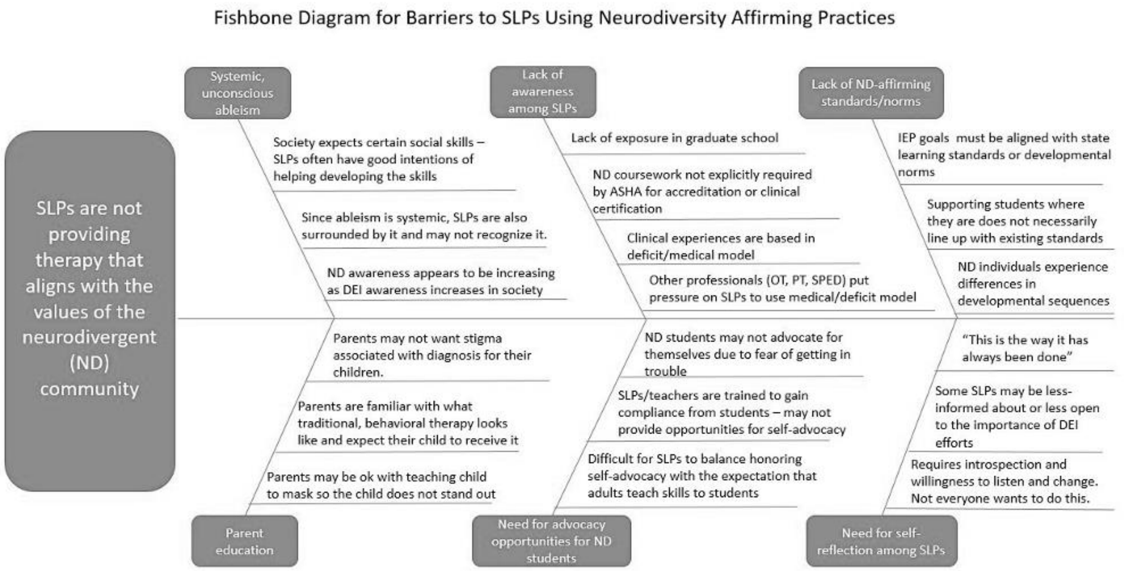
Appendix A: Empathy and Define Phases

Fishbone Diagram


Fishbone Diagram for Barriers to SLPs Using Neurodiversity Affirming Practices

Society expects certain social skills – SLPs often have good intentions of helping developing the skills

Since ableism is systemic, SLPs are also surrounded by it and may not recognize it.

ND awareness appears to be increasing as DEI awareness increases in society

Lack of exposure in graduate school

ND coursework not explicitly required by ASHA for accreditation or clinical certification

Clinical experiences are based in deficit/medical model

Other professionals (OT, PT, SPED) put pressure on SLPs to use medical/deficit model

IEP goals must be aligned with state learning standards or developmental norms

Supporting students where they are does not necessarily line up with existing standards

ND individuals experience differences in developmental sequences

Parents may not want stigma associated with diagnosis for their children.

Parents are familiar with what traditional, behavioral therapy looks like and expect their child to receive it

Parents may be ok with teaching child to mask so the child does not stand out

ND students may not advocate for themselves due to fear of getting in trouble

SLPs/teachers are trained to gain compliance from students – may not provide opportunities for self-advocacy

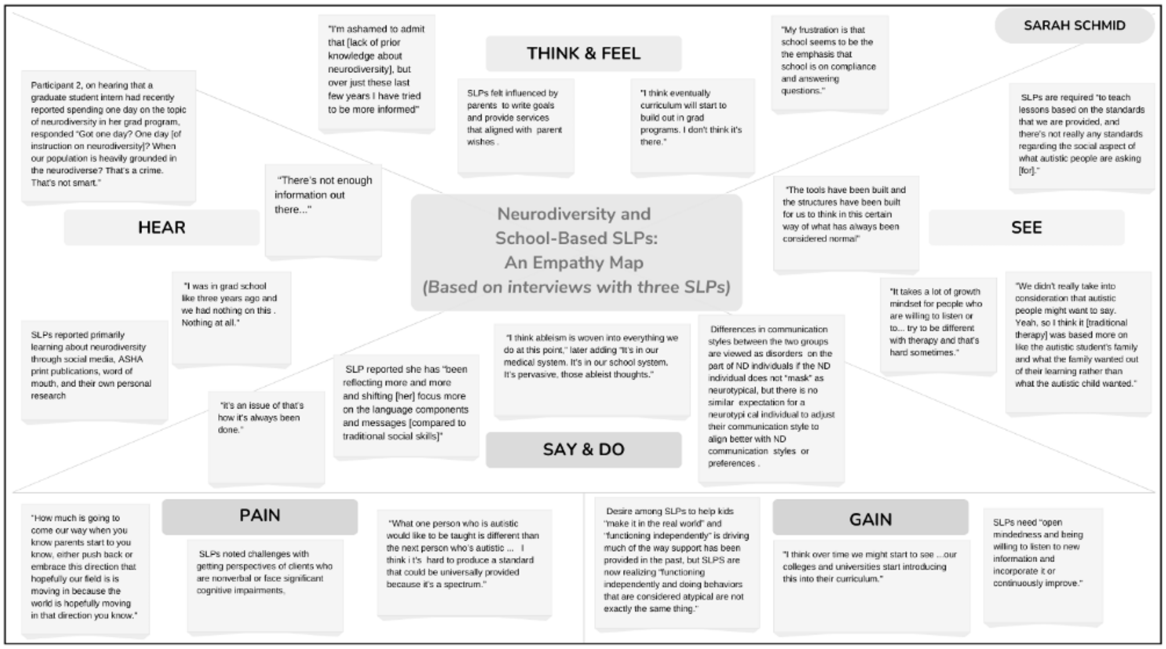
Difficult for SLPs to balance honoring self-advocacy with the expectation that adults teach skills to students

"This is the way it has always been done"

Some SLPs may be less-informed about or less open to the importance of DEI efforts

Requires introspection and willingness to listen and change. Not everyone wants to do this.

Empathy Map



Neurodiversity and School-Based SLPs: An Empathy Map (Based on interviews with three SLPs)

"I'm ashamed to admit that [lack of prior knowledge about neurodiversity], but over just these last few years I have tried to be more informed"

SLPs felt influenced by parents to write goals and provide services that aligned with parent wishes .

"I think eventually curriculum will start to build out in grad programs. I don't think it's there."

"My frustration is that school seems to be the the emphasis that school is on compliance and answering questions."

Participant 2, on hearing that a graduate student intern had recently reported spending one day on the topic of neurodiversity in her grad program, responded "Got one day? One day [of instruction on neurodiversity]? When our population is heavily grounded in the neurodiverse? That's a crime. That's not smart."

"There's not enough information out there..."

"I was in grad school like three years ago and we had nothing on this . Nothing at all."

SLPs reported primarily learning about neurodiversity through social media, ASHA print publications, word of mouth, and their own personal research

SLPs are required "to teach lessons based on the standards that we are provided, and there's not really any standards regarding the social aspect of what autistic people are asking [for]."

"The tools have been built and the structures have been built for us to think in this certain way of what has always been considered normal"

"It takes a lot of growth mindset for people who are willing to listen or to... try to be different with therapy and that's hard sometimes."

"We didn't really take into consideration that autistic people might want to say. Yeah, so I think it [traditional therapy] was based more on like the autistic student's family and what the family wanted out of their learning rather than what the autistic child wanted."

"It's an issue of that's how it's always been done."

SLP reported she has "been reflecting more and more and shifting [her] focus more on the language components and messages [compared to traditional social skills]"

"I think ableism is woven into everything we do at this point," later adding "It's in our medical system. It's in our school system. It's pervasive, those ableist thoughts."

Differences in communication styles between the two groups are viewed as disorders on the part of ND individuals if the ND individual does not "mask" as neurotypical, but there is no similar expectation for a neurotypi cal individual to adjust their communication style to align better with ND communication styles or preferences .

"How much is going to come our way when you know parents start to you know, either push back or embrace this direction that hopefully our field is is moving in because the world is hopefully moving in that direction you know."

SLPs noted challenges with getting perspectives of clients who are nonverbal or face significant cognitive impairments,

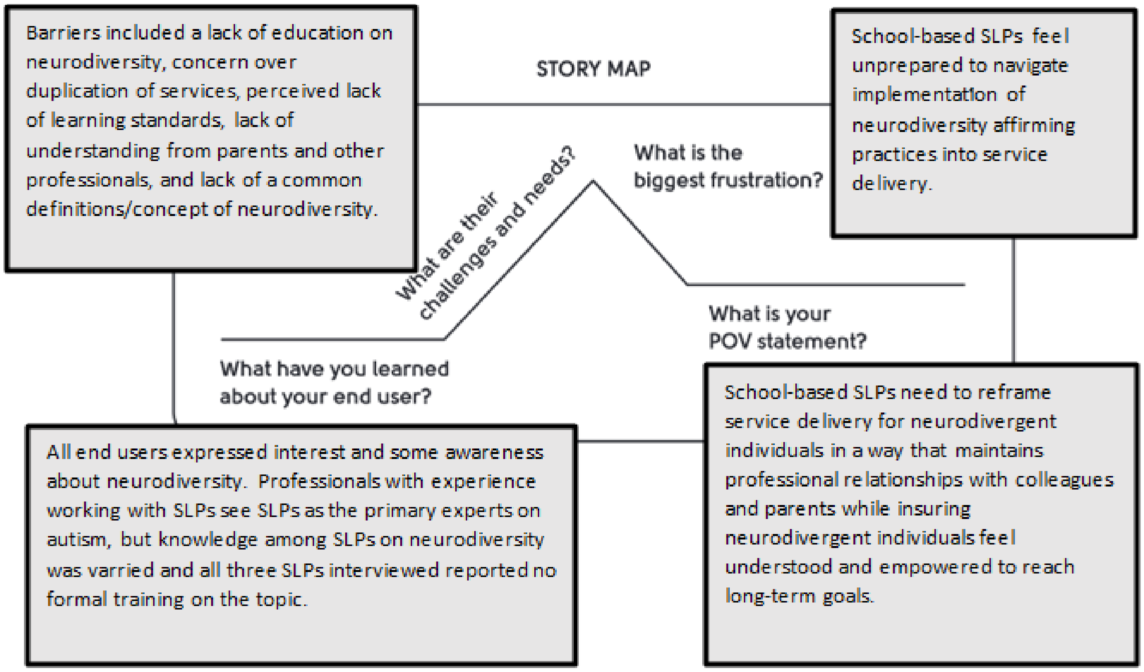
"What one person who is autistic would like to be taught is different than the next person who's autistic ... I think i t's hard to produce a standard that could be universally provided because it's a spectrum."

Desire among SLPs to help kids "make it in the real world" and "functioning independently" is driving much of the way support has been provided in the past, but SLPS are now realizing "functioning independently and doing behaviors that are considered atypical are not exactly the same thing."

"I think over time we might start to see ...our colleges and universities start introducing this into their curriculum."

SLPs need "open mindedness and being willing to listen to new information and incorporate it or continuously improve."

Story Map



Barriers included a lack of education on neurodiversity, concern over duplication of services, perceived lack of learning standards, lack of understanding from parents and other professionals, and lack of a common definitions/concept of neurodiversity.

School-based SLPs feel unprepared to navigate implementation of neurodiversity affirming practices into service delivery.

All end users expressed interest and some awareness about neurodiversity. Professionals with experience working with SLPs see SLPs as the primary experts on autism, but knowledge among SLPs on neurodiversity was varried and all three SLPs interviewed reported no formal training on the topic.

School-based SLPs need to reframe service delivery for neurodivergent individuals in a way that maintains professional relationships with colleagues and parents while insuring neurodivergent individuals feel understood and empowered to reach long-term goals.

Note. Adapted from *Design thinking in play: An action guide for educators* by A. Gallagher & K. Thordarson, p. 74. Copyright 2020 by ASCD. Adapted with permission.

Rationale for inclusion of questions in Empathy Interviews

The first question, “Have you ever interacted with an autistic individual/individuals? If so, please describe your experience,” was included to determine if participants had experience interacting with autistic individuals and, if so, what prior knowledge and experiences may be informing their current perception of autism and the therapeutic practices in use with this population.

The second question, “Have you ever worked with a speech-language pathologist? If so, please describe your experience,” was designed to assess participants familiarity with the field of speech-language pathology. The researcher was interested in better understanding public perception of speech-language pathologists and their role in supporting autistic individuals. Although SLPs were employed in a variety of settings, both medical and educational, the researcher was particularly interested in gauging participants' familiarity with school-based speech language pathology.

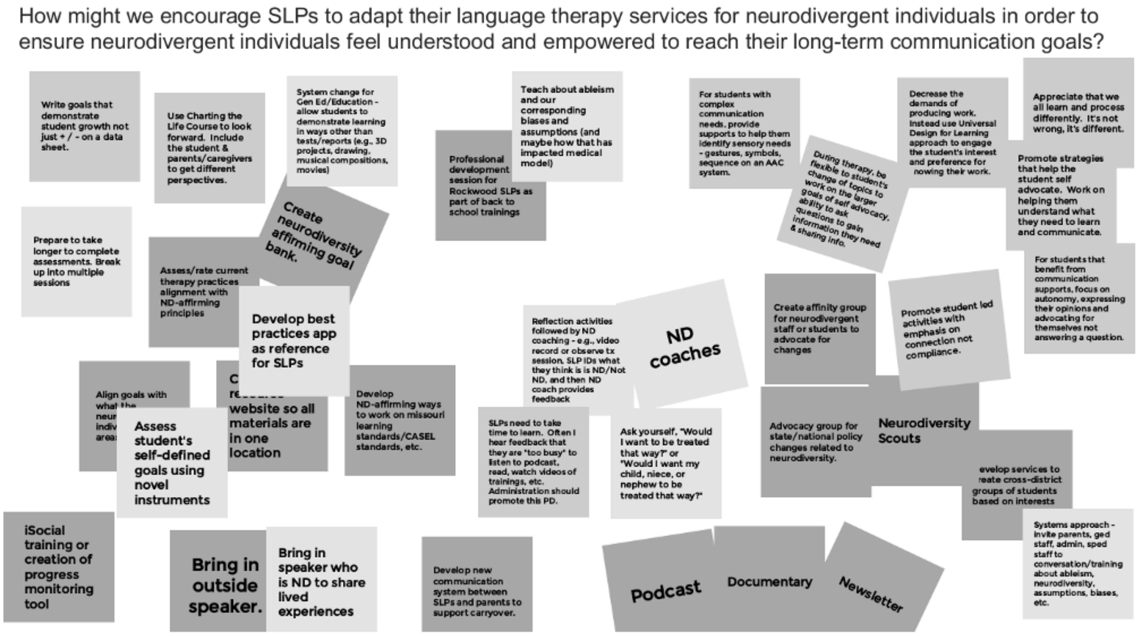
The third question, "Describe your understanding of the term "neurodiversity." If you are unsure, please describe what you think the term means?" was included to assess participants' familiarity and understanding with the concept of neurodiversity. While the topic appeared to be gaining broader usage in SLP circles and in broader society, an individual participant may or may not have come across the term in their own life. The question served the secondary function of assessing how individuals unfamiliar with the concept of neurodiversity may perceive the term on their first exposure. This information was of particular importance to the researcher as messaging and materials in later stages of the design thinking process may need to change depending on participants' understanding of fundamental concepts associated with the neurodiversity movement. Biases and misconceptions about the term would be important to be aware of and address in order to assist others in the adoption of neurodiversity-affirming practices.

The fourth question, "What, if any, challenges do you face when working with autistic individuals in your current setting?" was included to assess public perception of autistic individuals and reveal preconceived notions regarding areas in which autistic individuals may require support. Challenges reported related to meeting neurotypical standards (i.e., eye contact, conversational turn-taking, topic maintenance) may reveal participants' perception of a more traditional, medical model of intervention. Challenges reported related to self-advocacy and adapting the environment to support neurodivergent individuals may reveal alignment with principles of neurodiversity.

The fifth question, “Has your perception of autism changed over time? If so, how?” was designed to assess how non-SLPs in the field of education are being exposed to and/or adapting to increased messaging in the press and on social media regarding neurodiversity. Changes in public perception over time toward a neurodiversity perspective may further support the need for SLPs to adopt neurodiversity-affirming practices to remain current with societal changes. Changes in public perception suggesting a movement toward practices based on behavioral principles including applied behavioral analysis (ABA) may suggest additional education of the public may be an essential component of any effort to increase use of neurodiversity-affirming practices.

Appendix B: Ideation Phase - Brainstorming and Mind Map

Brainstorming session Jamboard document



How might we encourage SLPs to adapt their language therapy services for neurodivergent individuals in order to ensure neurodivergent individuals feel understood and empowered to reach their long-term communication goals?

Write goals that demonstrate student growth not just + / - on a data sheet.

Use Charting the Life Course to look forward. Include the student & parents/caregivers to get different perspectives.

System change for Gen Ed/Education - allow students to demonstrate learning in ways other than tests/reports (e.g., 3D projects, drawing, musical compositions, movies)

Professional development session for Rockwood SLPs as part of back to school trainings

Teach about ableism and our corresponding biases and assumptions (and maybe how that has impacted medical model)

For students with complex communication needs, provide supports to help them identify sensory needs - gestures, symbols, sequence on an AAC system.

During therapy, be flexible to student's change of topics to work on the larger goals of self advocacy, ability to ask questions to gain information they need & sharing info.

Decrease the demands of producing work. Instead use Universal Design for Learning approach to engage the student's interest and preference for nowing their work.

Appreciate that we all learn and process differently. It's not wrong, it's different.

Promote strategies that help the student self advocate. Work on helping them understand what they need to learn and communicate.

Prepare to take longer to complete assessments. Break up into multiple sessions

Create neurodiversity affirming goal bank.

Assess/rate current therapy practices alignment with ND-affirming principles

Develop best practices app as reference for SLPs

Reflection activities followed by ND coaching - e.g., video record or observe tx session. SLP IDs what they think is is ND/Not ND, and then ND coach provides feedback

ND coaches

Create affinity group for neurodivergent staff or students to advocate for changes

Promote student led activities with emphasis on connection not compliance.

For students that benefit from communication supports, focus on autonomy, expressing their opinions and advocating for themselves not answering a question.

Align goals with what the neur indiv area

Assess student's self-defined goals using novel instruments

C re website so all materials are in one location

Develop ND-affirming ways to work on missouri learning standards/CASEL standards, etc.

SLPs need to take time to learn. Often I hear feedback that they are "too busy" to listen to podcast, read, watch videos of trainings, etc. Administration should promote this PD.

Ask yourself, "Would I want to be treated that way?" or "Would I want my child, niece, or nephew to be treated that way?"

Advocacy group for state/national policy changes related to neurodiversity.

Neurodiversity Scouts

evelop services to reate cross-district groups of students based on interests

iSocial training or creation of progress monitoring tool

Bring in outside speaker.

Bring in speaker who is ND to share lived experiences

Develop new communication system between SLPs and parents to support carryover.

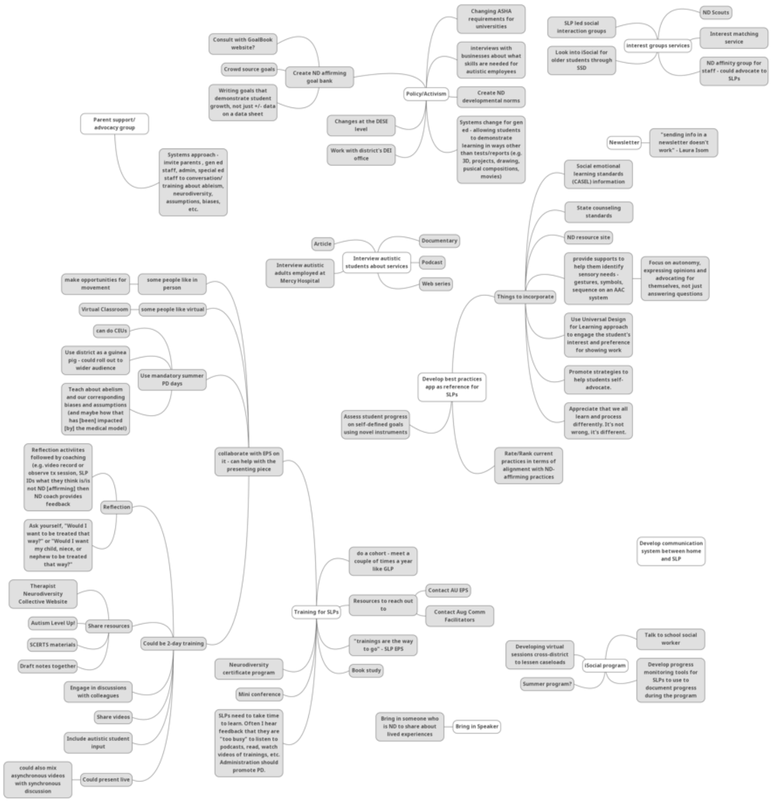
Podcast

Documentary

Newsletter

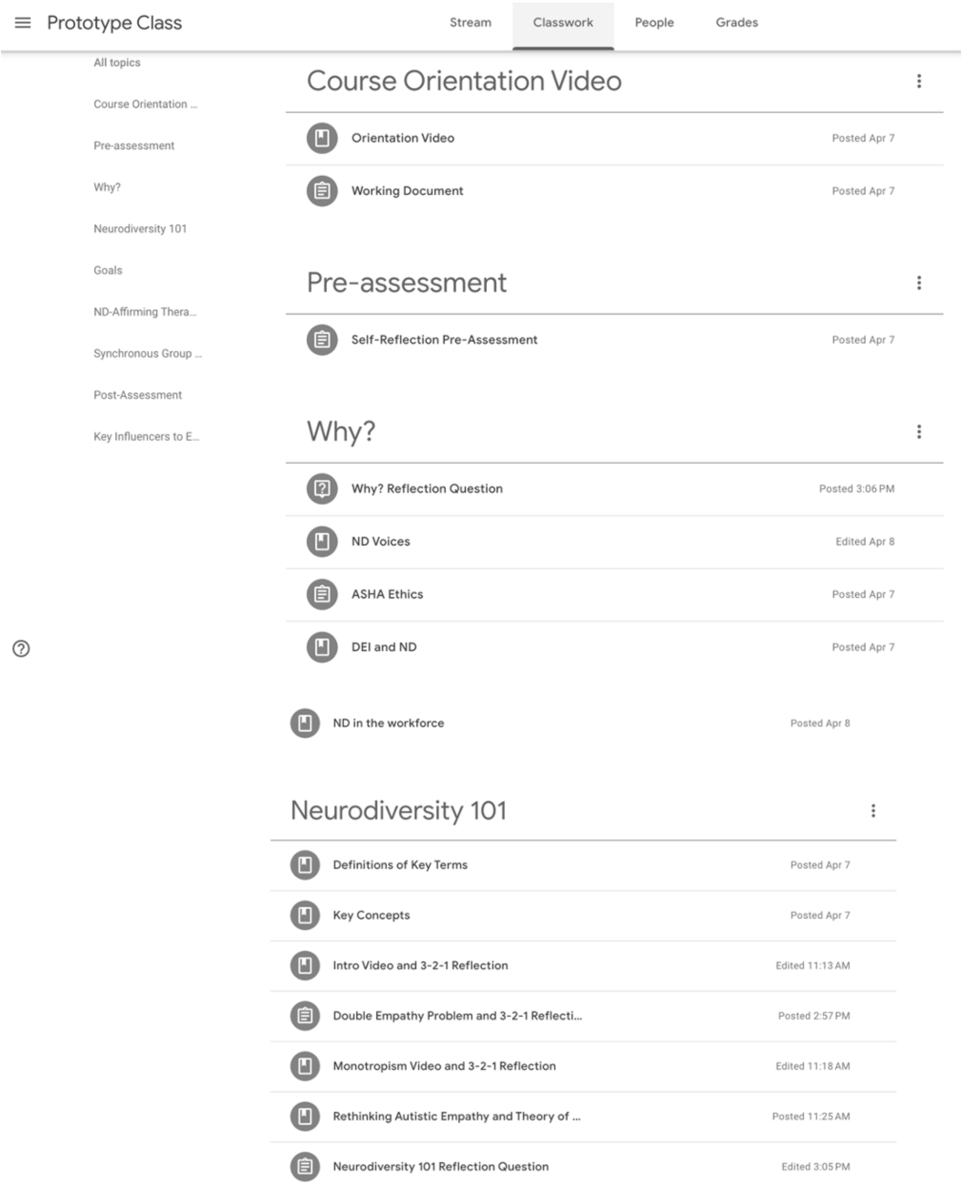
Systems approach - invite parents, ged staff, admin, sped staff to conversation/training about ableism, neurodiversity, assumptions, biases, etc.

Mind map



Appendix C: Prototype graphic, initial and revised

Initial prototype



Course Orientation Video

Orientation Video Posted Apr 7

Working Document Posted Apr 7

Pre-assessment

Self-Reflection Pre-Assessment Posted Apr 7

Why?

Why? Reflection Question Posted 3:06 PM

ND Voices Edited Apr 8

ASHA Ethics Posted Apr 7

DEI and ND Posted Apr 7

ND in the workforce Posted Apr 8

Neurodiversity 101

Definitions of Key Terms Posted Apr 7

Key Concepts Posted Apr 7

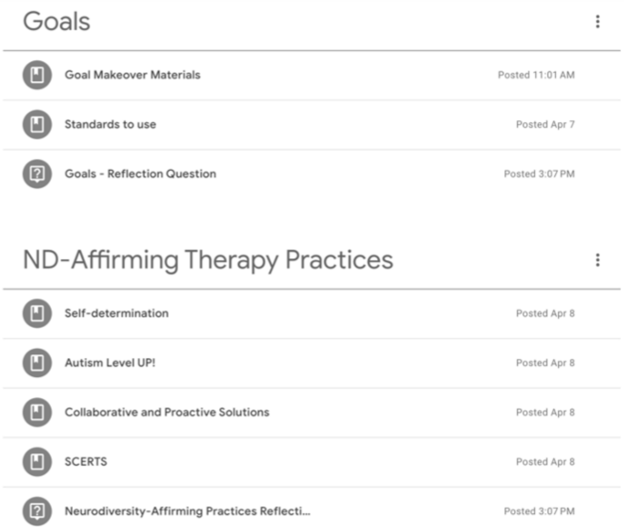
Intro Video and 3-2-1 Reflection Edited 11:13 AM

Double Empathy Problem and 3-2-1 Reflecti... Posted 2:57 PM

Monotropism Video and 3-2-1 Reflection Edited 11:18 AM

Rethinking Autistic Empathy and Theory of ... Posted 11:25 AM

Neurodiversity 101 Reflection Question Edited 3:05 PM



Goals

Goal Makeover Materials Posted 11:01 AM

Standards to use Posted Apr 7

Goals - Reflection Question Posted 3:07 PM

ND-Affirming Therapy Practices

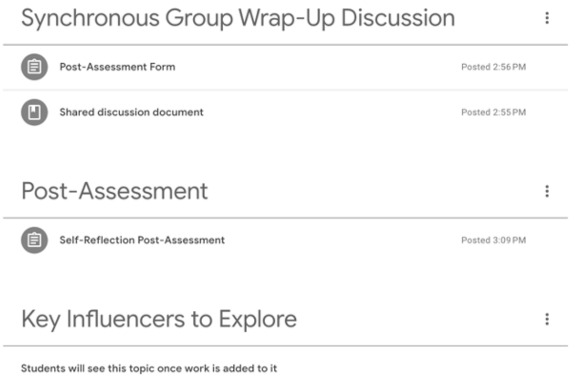
Self-determination Posted Apr 8

Autism Level UP! Posted Apr 8

Collaborative and Proactive Solutions Posted Apr 8

SCERTS Posted Apr 8

Neurodiversity-Affirming Practices Reflecti... Posted 3:07 PM



Synchronous Group Wrap-Up Discussion

Post-Assessment Form Posted 2:56 PM

Shared discussion document Posted 2:55 PM

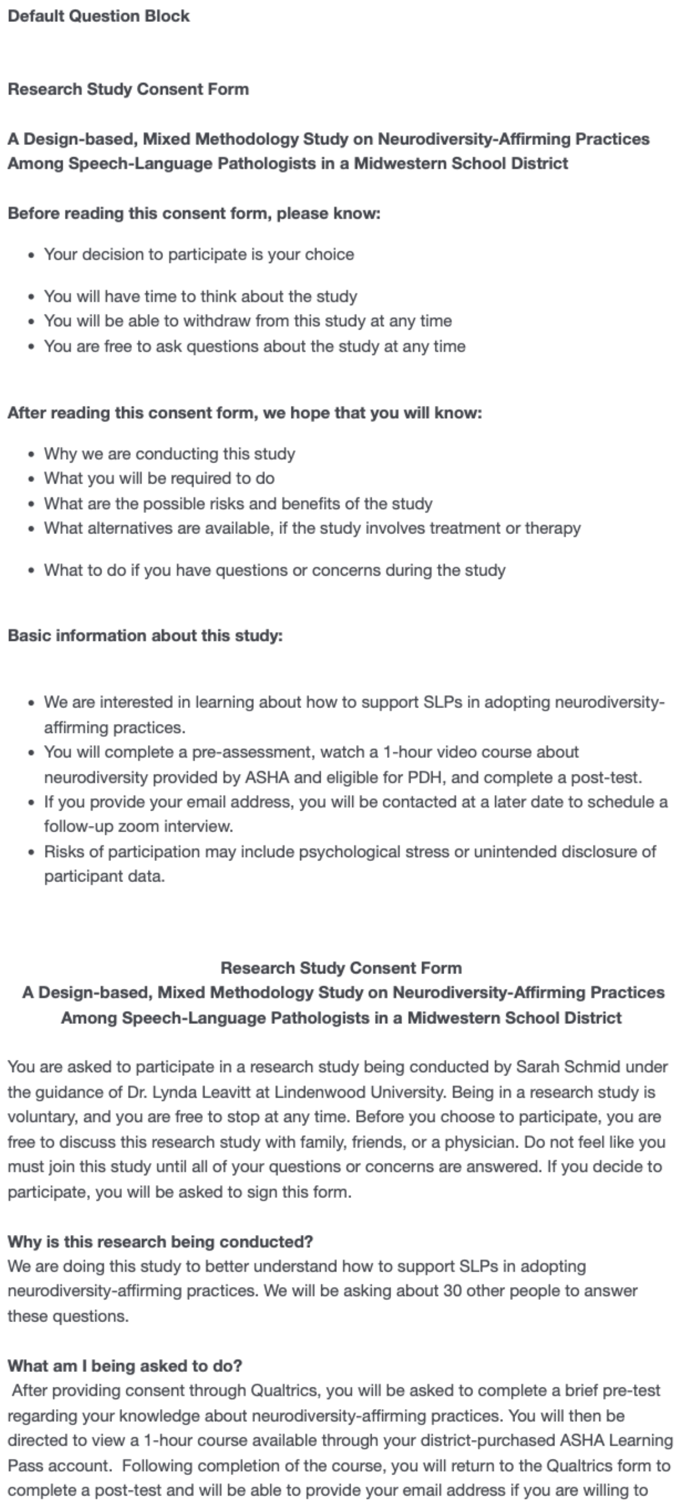
Post-Assessment

Self-Reflection Post-Assessment Posted 3:09 PM

Key Influencers to Explore

Students will see this topic once work is added to it

Revised Prototype



Default Question Block

Research Study Consent Form

A Design-based, Mixed Methodology Study on Neurodiversity-Affirming Practices Among Speech-Language Pathologists in a Midwestern School District

Before reading this consent form, please know:

- Your decision to participate is your choice
- You will have time to think about the study
- You will be able to withdraw from this study at any time
- You are free to ask questions about the study at any time

After reading this consent form, we hope that you will know:

- Why we are conducting this study
- What you will be required to do
- What are the possible risks and benefits of the study
- What alternatives are available, if the study involves treatment or therapy
- What to do if you have questions or concerns during the study

Basic information about this study:

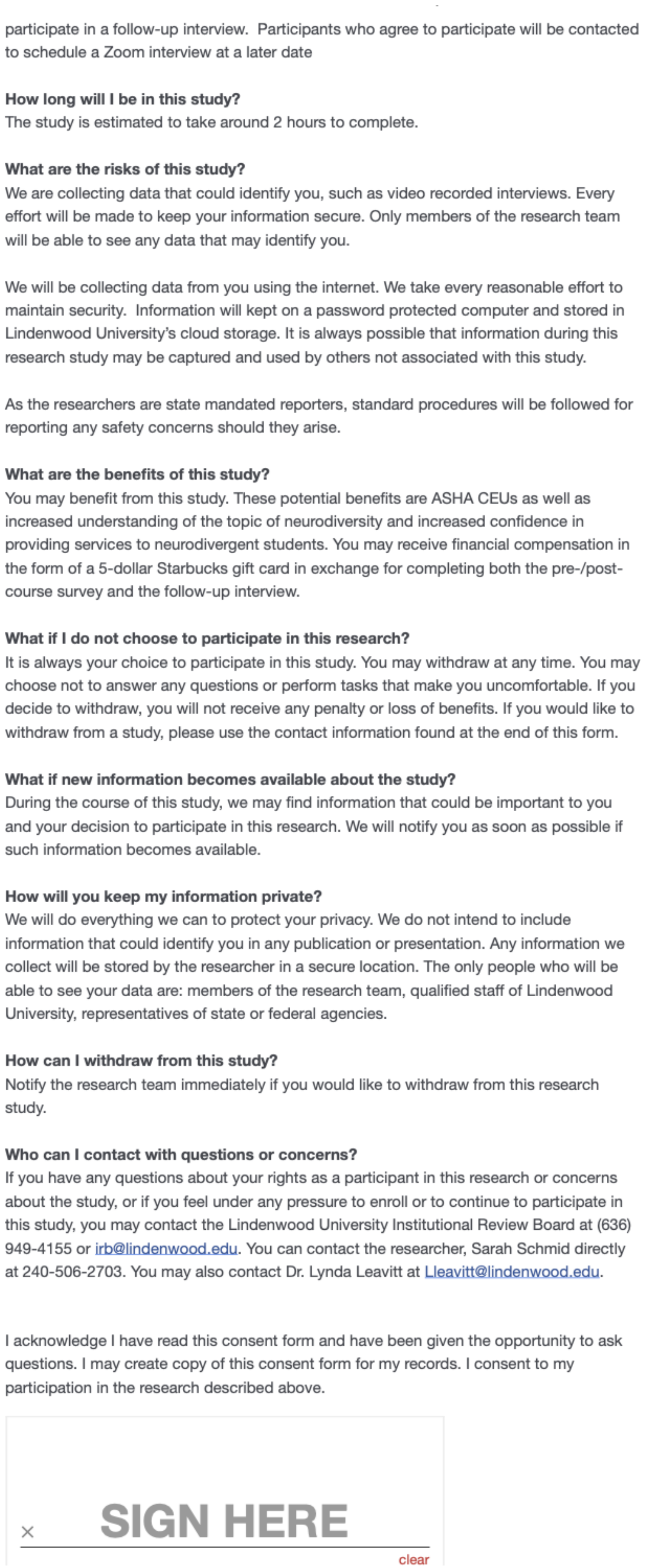
- We are interested in learning about how to support SLPs in adopting neurodiversity-affirming practices.
- You will complete a pre-assessment, watch a 1-hour video course about neurodiversity provided by ASHA and eligible for PDH, and complete a post-test.
- If you provide your email address, you will be contacted at a later date to schedule a follow-up zoom interview.
- Risks of participation may include psychological stress or unintended disclosure of participant data.

Research Study Consent Form
A Design-based, Mixed Methodology Study on Neurodiversity-Affirming Practices
Among Speech-Language Pathologists in a Midwestern School District

You are asked to participate in a research study being conducted by Sarah Schmid under the guidance of Dr. Lynda Leavitt at Lindenwood University. Being in a research study is voluntary, and you are free to stop at any time. Before you choose to participate, you are free to discuss this research study with family, friends, or a physician. Do not feel like you must join this study until all of your questions or concerns are answered. If you decide to participate, you will be asked to sign this form.

Why is this research being conducted?
We are doing this study to better understand how to support SLPs in adopting neurodiversity-affirming practices. We will be asking about 30 other people to answer these questions.

What am I being asked to do?
After providing consent through Qualtrics, you will be asked to complete a brief pre-test regarding your knowledge about neurodiversity-affirming practices. You will then be directed to view a 1-hour course available through your district-purchased ASHA Learning Pass account. Following completion of the course, you will return to the Qualtrics form to complete a post-test and will be able to provide your email address if you are willing to



participate in a follow-up interview. Participants who agree to participate will be contacted to schedule a Zoom interview at a later date

How long will I be in this study?
The study is estimated to take around 2 hours to complete.

What are the risks of this study?
We are collecting data that could identify you, such as video recorded interviews. Every effort will be made to keep your information secure. Only members of the research team will be able to see any data that may identify you.

We will be collecting data from you using the internet. We take every reasonable effort to maintain security. Information will kept on a password protected computer and stored in Lindenwood University's cloud storage. It is always possible that information during this research study may be captured and used by others not associated with this study.

As the researchers are state mandated reporters, standard procedures will be followed for reporting any safety concerns should they arise.

What are the benefits of this study?
You may benefit from this study. These potential benefits are ASHA CEUs as well as increased understanding of the topic of neurodiversity and increased confidence in providing services to neurodivergent students. You may receive financial compensation in the form of a 5-dollar Starbucks gift card in exchange for completing both the pre-/post-course survey and the follow-up interview.

What if I do not choose to participate in this research?
It is always your choice to participate in this study. You may withdraw at any time. You may choose not to answer any questions or perform tasks that make you uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of benefits. If you would like to withdraw from a study, please use the contact information found at the end of this form.

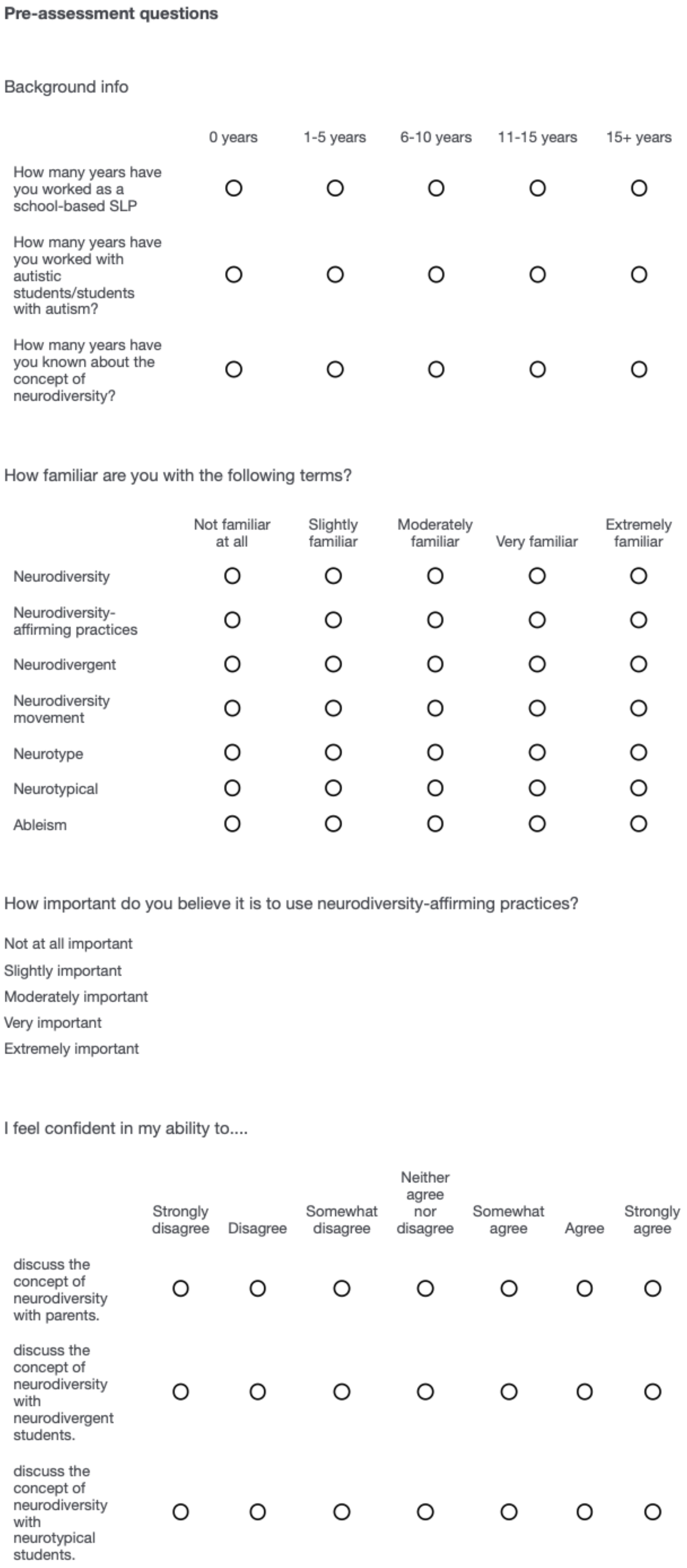
What if new information becomes available about the study?
During the course of this study, we may find information that could be important to you and your decision to participate in this research. We will notify you as soon as possible if such information becomes available.

How will you keep my information private?
We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

How can I withdraw from this study?
Notify the research team immediately if you would like to withdraw from this research study.

Who can I contact with questions or concerns?
If you have any questions about your rights as a participant in this research or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the Lindenwood University Institutional Review Board at (636) 949-4155 or irb@lindenwood.edu. You can contact the researcher, Sarah Schmid directly at 240-506-2703. You may also contact Dr. Lynda Leavitt at Lleavitt@lindenwood.edu.

I acknowledge I have read this consent form and have been given the opportunity to ask questions. I may create copy of this consent form for my records. I consent to my participation in the research described above.



Pre-assessment questions

Background info

	0 years	1-5 years	6-10 years	11-15 years	15+ years
How many years have you worked as a school-based SLP	○	○	○	○	○
How many years have you worked with autistic students/students with autism?	○	○	○	○	○
How many years have you known about the concept of neurodiversity?	○	○	○	○	○

How familiar are you with the following terms?

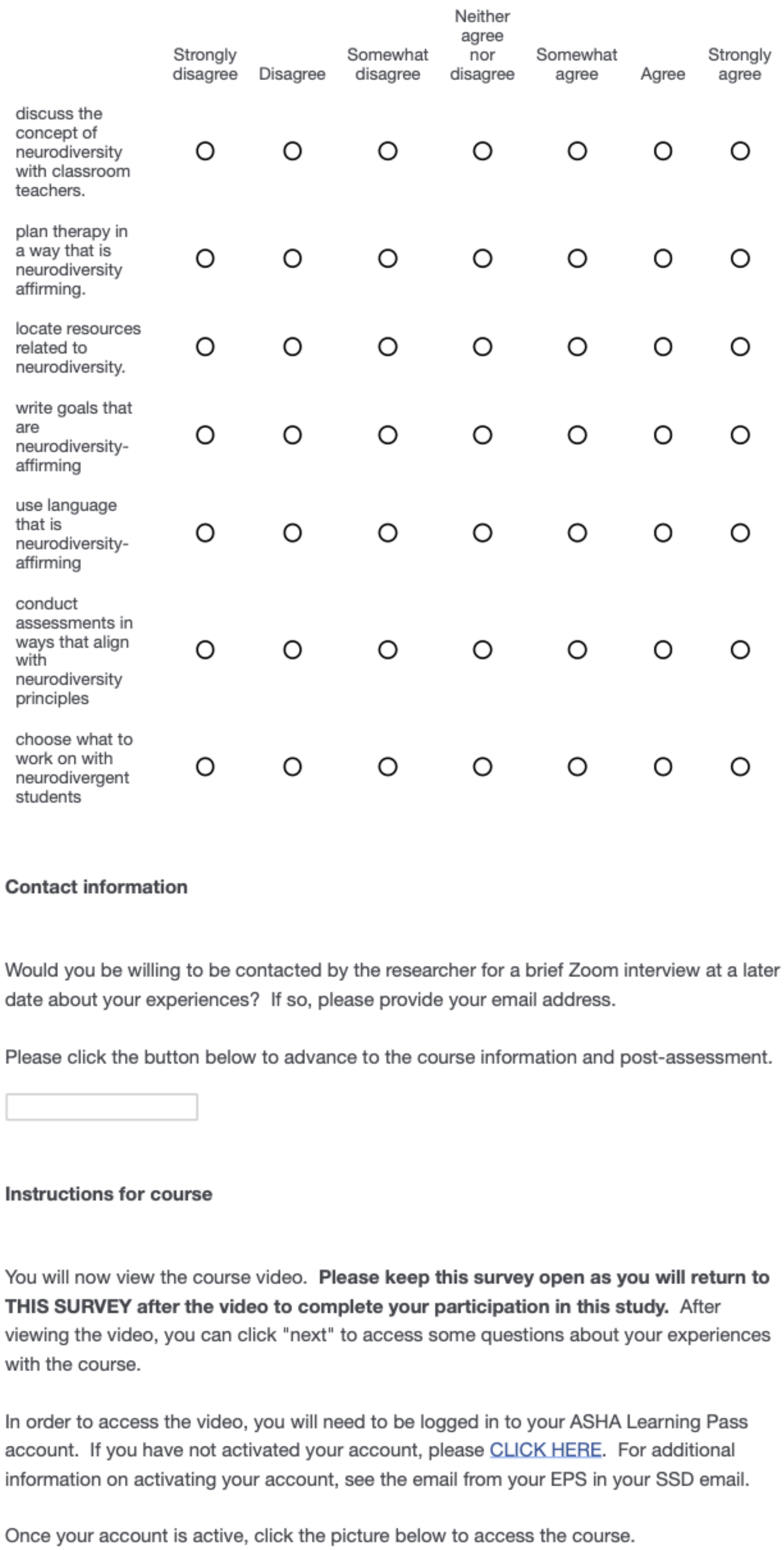
	Not familiar at all	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
Neurodiversity	○	○	○	○	○
Neurodiversity-affirming practices	○	○	○	○	○
Neurodivergent	○	○	○	○	○
Neurodiversity movement	○	○	○	○	○
Neurotype	○	○	○	○	○
Neurotypical	○	○	○	○	○
Ableism	○	○	○	○	○

How important do you believe it is to use neurodiversity-affirming practices?

Not at all important
Slightly important
Moderately important
Very important
Extremely important

I feel confident in my ability to....

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
discuss the concept of neurodiversity with parents.	○	○	○	○	○	○	○
discuss the concept of neurodiversity with neurodivergent students.	○	○	○	○	○	○	○
discuss the concept of neurodiversity with neurotypical students.	○	○	○	○	○	○	○



	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
discuss the concept of neurodiversity with classroom teachers.	○	○	○	○	○	○	○
plan therapy in a way that is neurodiversity affirming.	○	○	○	○	○	○	○
locate resources related to neurodiversity.	○	○	○	○	○	○	○
write goals that are neurodiversity-affirming	○	○	○	○	○	○	○
use language that is neurodiversity-affirming	○	○	○	○	○	○	○
conduct assessments in ways that align with neurodiversity principles	○	○	○	○	○	○	○
choose what to work on with neurodivergent students	○	○	○	○	○	○	○

Contact information

Would you be willing to be contacted by the researcher for a brief Zoom interview at a later date about your experiences? If so, please provide your email address.

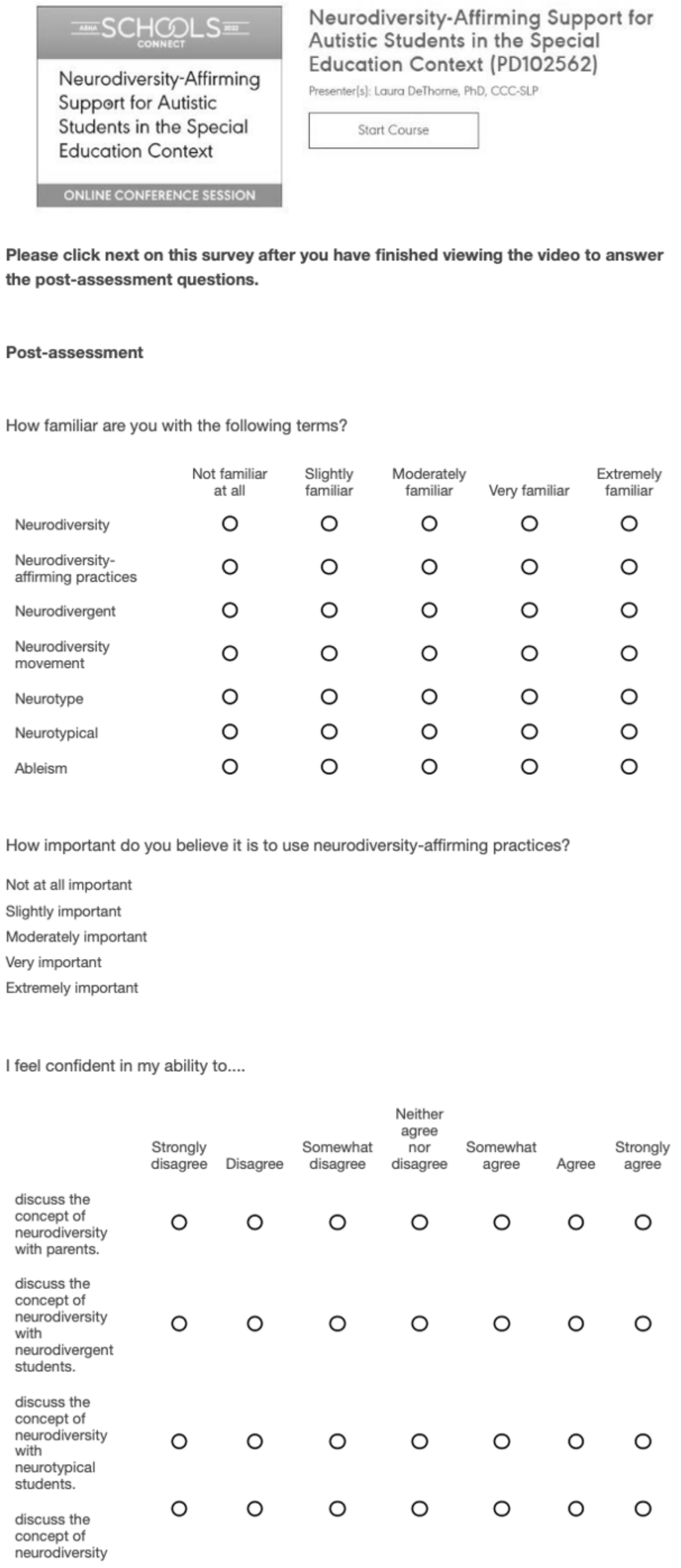
Please click the button below to advance to the course information and post-assessment.

Instructions for course

You will now view the course video. **Please keep this survey open as you will return to THIS SURVEY after the video to complete your participation in this study.** After viewing the video, you can click "next" to access some questions about your experiences with the course.

In order to access the video, you will need to be logged in to your ASHA Learning Pass account. If you have not activated your account, please CLICK HERE. For additional information on activating your account, see the email from your EPS in your SSD email.

Once your account is active, click the picture below to access the course.



Neurodiversity-Affirming Support for Autistic Students in the Special Education Context (PD102562)

Presenter(s): Laura DeThorne, PhD, CCC-SLP

Please click next on this survey after you have finished viewing the video to answer the post-assessment questions.

Post-assessment

How familiar are you with the following terms?

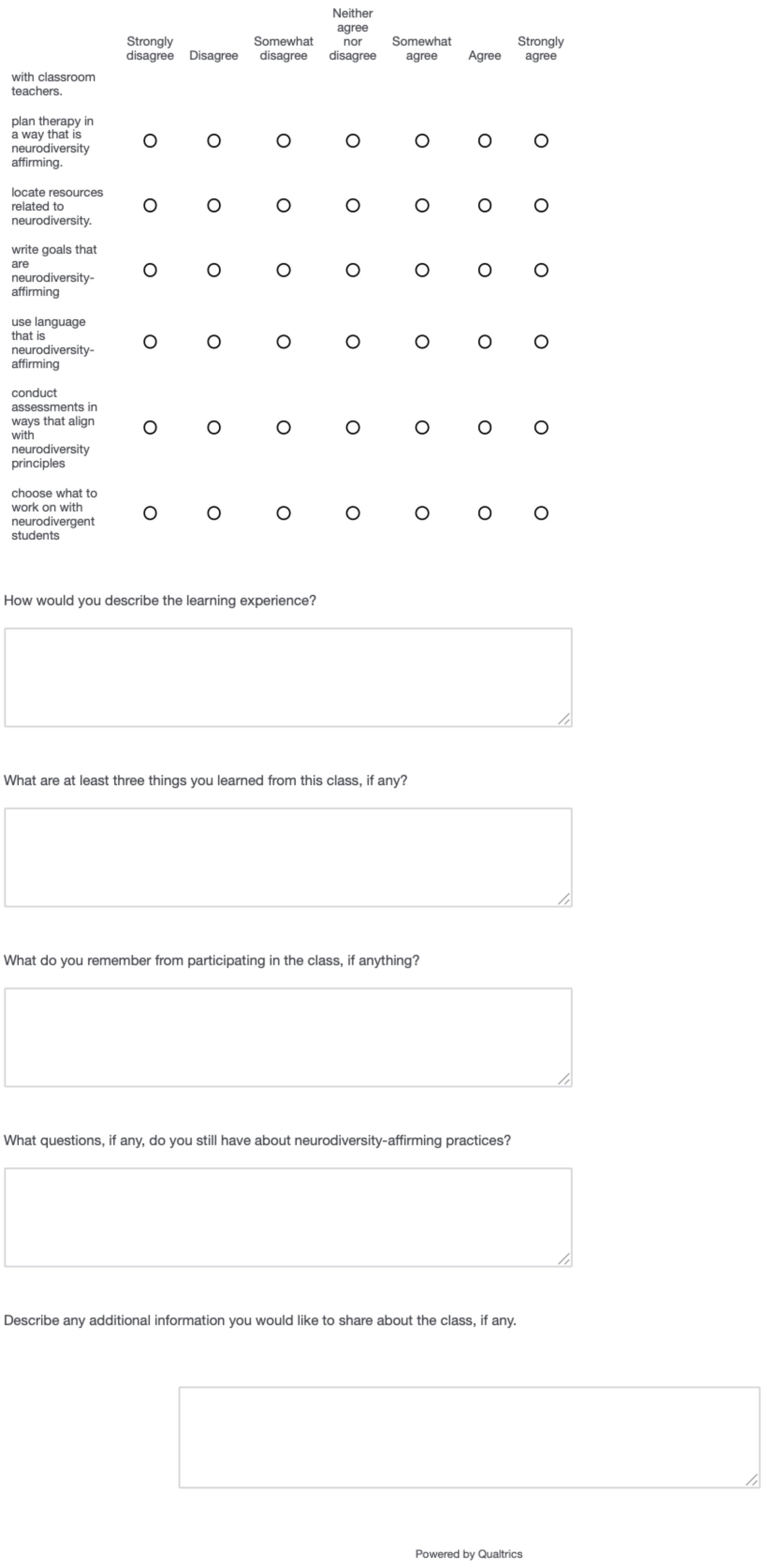
	Not familiar at all	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
Neurodiversity	○	○	○	○	○
Neurodiversity-affirming practices	○	○	○	○	○
Neurodivergent	○	○	○	○	○
Neurodiversity movement	○	○	○	○	○
Neurotype	○	○	○	○	○
Neurotypical	○	○	○	○	○
Ableism	○	○	○	○	○

How important do you believe it is to use neurodiversity-affirming practices?

Not at all important
Slightly important
Moderately important
Very important
Extremely important

I feel confident in my ability to....

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
discuss the concept of neurodiversity with parents.	○	○	○	○	○	○	○
discuss the concept of neurodiversity with neurodivergent students.	○	○	○	○	○	○	○
discuss the concept of neurodiversity with neurotypical students.	○	○	○	○	○	○	○
discuss the concept of neurodiversity	○	○	○	○	○	○	○



	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
with classroom teachers.							
plan therapy in a way that is neurodiversity affirming.	○	○	○	○	○	○	○
locate resources related to neurodiversity.	○	○	○	○	○	○	○
write goals that are neurodiversity-affirming	○	○	○	○	○	○	○
use language that is neurodiversity-affirming	○	○	○	○	○	○	○
conduct assessments in ways that align with neurodiversity principles	○	○	○	○	○	○	○
choose what to work on with neurodivergent students	○	○	○	○	○	○	○

How would you describe the learning experience?

What are at least three things you learned from this class, if any?

What do you remember from participating in the class, if anything?

What questions, if any, do you still have about neurodiversity-affirming practices?

Describe any additional information you would like to share about the class, if any.

Appendix D: Test Phase - Codebook

Codebook

Description	Title	Scale	Data
ID (added variable)	Identification Number	Respondent Number (1-18)	Nominal
Job Experience	Exp1	1=0 years, 2=1-5 years, 3 = 6-10 years, 4 = 1-1-15 years, 5 = 15+ years	Ordinal
Experience working with autistic students	Exp2	1=0 years, 2=1-5 years, 3 = 6-10 years, 4 = 11-15 years, 5 = 15+ years	Ordinal
Length of knowledge of the concept of neurodiversity	Exp3	1=0 years, 2=1-5 years, 3 = 6-10 years, 4 = 11-15 years, 5 = 15+ years	Ordinal
Preassessment - familiarity	F1pre to F7pre	1= not familiar at all, 2=slightly familiar, 3=moderately familiar, 4= very familiar, 5 = extremely familiar	Scale
Preassessment - importance	Ipre	1=not at all important= slightly important, 3=moderately important, 4=very important, 5=extremely important	Scale
Preassessment-confidence	C1pre to C10pre	1= strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5= somewhat agree, 6= agree, 7 = strongly agree	Scale
Post-assessment - familiarity	F1post to F7post	1= not familiar at all, 2=slightly familiar, 3=moderately familiar, 4= very familiar, 5 = extremely familiar	Scale
Post-assessment - importance	Ipost	1=not at all important= slightly important, 3=moderately important, 4=very important, 5=extremely important	Scale
Post-asssessment-confidence	C1post to C10post	1= strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5= somewhat agree, 6= agree, 7 = strongly agree	Scale
Difference - familiarity (added variable)	F1dif to F7dif	Post - Pre for each familiarity question	Scale
Difference - importance (added variable)	Idif	Post - Pre for importance questions	Scale
Difference - confidence (added variable)	C1dif to C10dif	Post - Pre for each confidence question	Scale

Biographical Information

Education

Lindenwood University / EdD Leadership

August 2021-present, St. Charles, Missouri

(estimated completion date May 2024)

Dissertation Topic: Neurodiversity Affirming Practices in Speech-Language Pathology

Current GPA: 4.0

Coursework: Creative Courage; Principles of Design Thinking; Leadership, Ethics, and Education; American Education; Leadership Theory and Application; Leading Organizational Change; Research Design, Methods, and Ethics in Educational Research; Applied Qualitative Research Methods

University of Maryland -College Park / M.A. Speech-Language Pathology

August 2006 - May 2008, College Park, Maryland

Master’s Thesis: Infant Speech-in-Noise Perception and Later Phonological Awareness Skills: A Longitudinal Study

GPA: 3.785

Coursework: Fluency Disorders, Language Disorders in Children, Diagnostic Procedures, Therapeutic Procedures, Aphasia, Phonological and Articulation Disorders, Research Design, Aural Rehab/Habilitation, Dysphagia, Neuromotor Disorders, Diagnostic Audiology, Voice Disorders

Ball State University / B.A. Speech-Language Pathology

August 2002 - May 2006, Muncie, Indiana

Undergraduate Honors Thesis: Reading to Learn: The role of metacognition in reading comprehension and academic achievement of students with learning disabilities

Minor in French

GPA: 3.949 Summa Cum Laude

Coursework: Survey of Speech-Language Pathology and Audiology; Clinical Phonetics; Anatomy of Speech and Hearing; Speech Sound Disorders; Language Development; Speech

Acoustics; Language and Society; Introduction to Diagnostics; Introduction to Audiology; Introduction to Linguistic Science; Child Language Disorders 1; Neuroanatomy and Neurophysiology of Speech, Language, and Hearing; Aural Rehabilitation; Child Development; Applied Behavior Analysis; Neurogenic and Organic Speech Disorders

Work Experience and Responsibilities

Speech-Language Pathologist (CWSD)

August 2011 – present

Supervised graduate student interns

Provided in-person and teletherapy services

Assessment and treatment of students with speech-language impairments and related disabilities at the middle school and elementary school in a Midwest school district.

Case management and compliance with state and federally mandated documentation and timelines.

Counseling and education of students and parents as they navigate the special education process.

Collaboration with school administration, special education staff, and classroom teachers to address the individual needs of students.

Served as a District Technology Ambassador to learn and share best practices for increasing student engagement through the use of technology and the design thinking process.

Speech-Language Pathologist (Montgomery County Public Schools)

August 2008 - May 2011

Assessment and treatment of students with speech-language impairments and related disabilities at Ronald McNair Elementary and Strawberry Knoll Elementary.

Case management and compliance with state and federally mandated documentation and timelines.

Counseling and education of students and parents as they navigate the special education process.

Collaboration with school administration, special education staff, and classroom teachers to address the individual needs of students.

Graduate Research Assistant (Center for Advanced Study of Language)

August 2006- May 2008

Coordination and scheduling of participants and administration of computerized test battery to assess high-level language aptitude.

Collection, transformation, and analysis of statistical data obtained from language aptitude testing using SPSS and Microsoft Excel.

Transcription and coding of interviews using qualitative data analysis software to look for trends in interviews.

Maintenance of Top Secret - SCI security clearance for research for the Department of Defense.

Awards

Dana Brown Teacher Mini-grant - Articulation Carryover Kits (2018)

Funding for “Speech Carryover Kits” for students who are working on speech articulation. Students can take these kits with them to their classrooms to encourage generalization and carryover of their speech sounds to outside of the therapy room.

Montgomery County Public Schools Partnership (2006)

In-state tuition status plus $20,000 stipend in exchange for working for Montgomery County Public Schools for 3 years after graduation from graduate school awarded based on undergraduate academic record and application.

Graduate Research Assistantship (2006)

Full-tuition awarded plus living stipend in exchange for assisting in research for the Department of Defense through the Center for Advanced Study of Languages (CASL - name has since changed to Advanced Research Laboratory for Intelligence and Security) following application/interview.

Honors College Scholarship (2002)

Full-tuition based on high school academic record and application/interview.

Oliver K Ho Scholarship (2002)

Stipend awarded based on academic record and application/interview.

Licensure	ASHA Certificate of Clinical Competence Missouri Board of Healing Arts Missouri Department of Elementary and Secondary Education certification